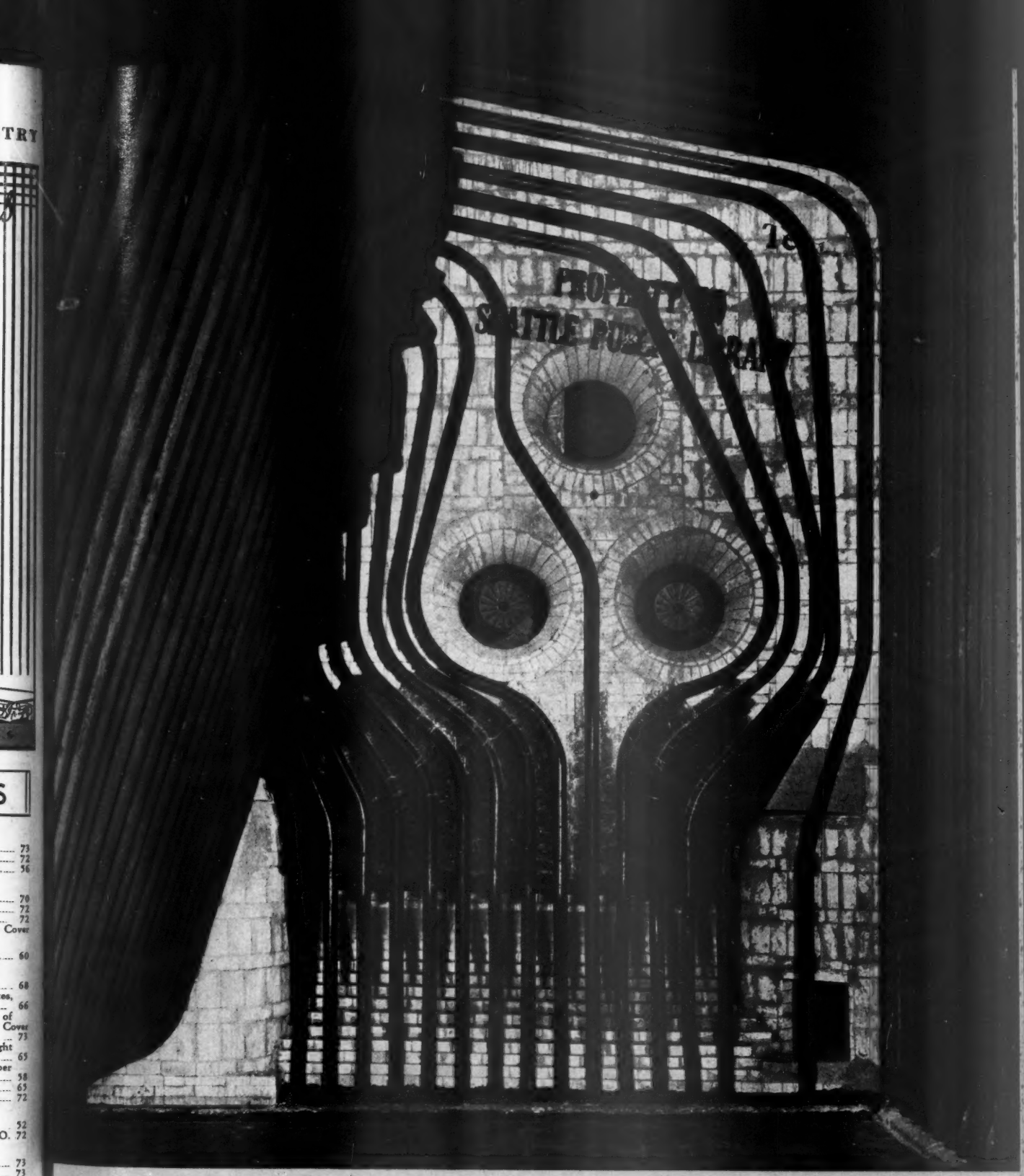
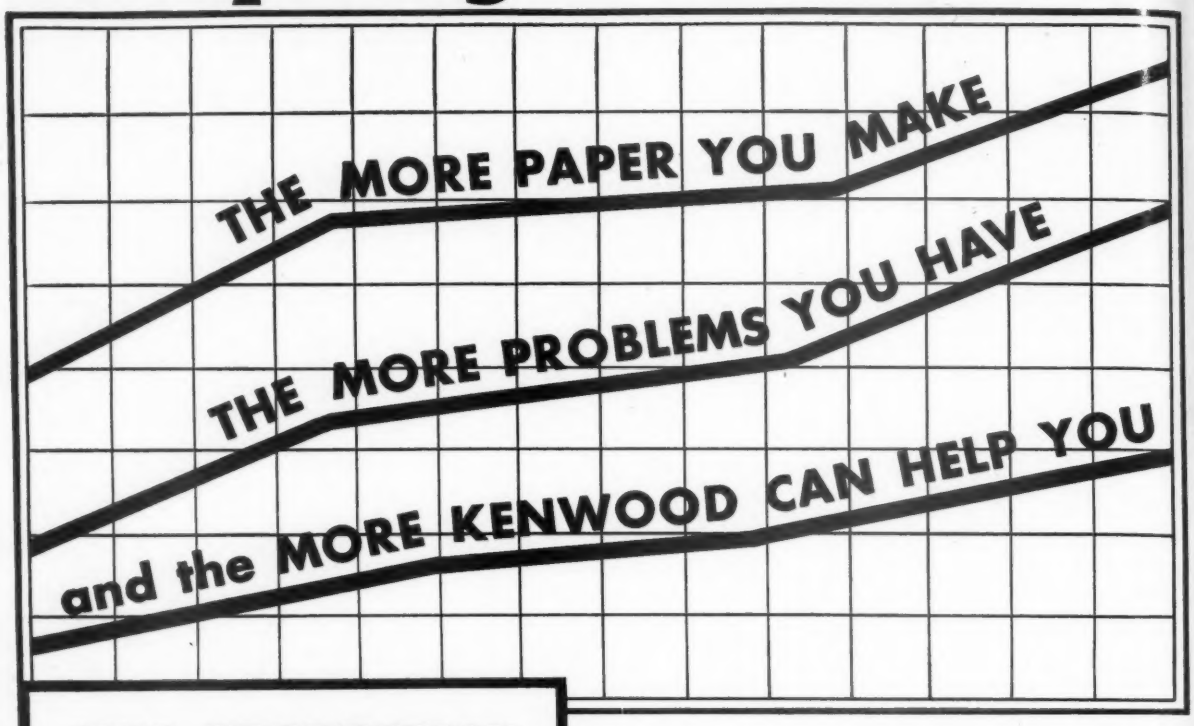


INTERIOR of the SOUNDVIEW PULP COMPANY'S new No. 6 Integral Furnace Hog Fuel Boiler. See page 11.

PACIFIC Pulp & Paper INDUSTRY

Vol. 15 • No. 4 APRIL 1941

Everything is on the UP!



1940 PRODUCTION

Total Paper
14,372,000 tons . . **UP 6%**

Paperboard
6,550,000 tons . . **UP 7%**

Newsprint
1,030,000 tons . . . **UP 8%**

Tissue Paper
720,000 tons . . . **UP 8%**

Book Paper
1,624,000 tons . . . **UP 6%**

Wrapping Paper
2,350,000 tons . . **UP 5%**

PAPER PRODUCTION hit another new high in 1940, and there is every indication that even greater advances will be made in 1941. During such times of rapid expansion frequent changes may be made in your grade of paper, the mechanical hook-up of your machines, or the speed of operation. Every such change brings new paper problems involving felts—problems which F. C. Huyck & Sons, makers of Kenwood Felts, can help you solve. For every Kenwood Felt is backed by 71 years of experience, by Huyck research, and by field engineers who study your problems. There is a representative in your territory who will be glad to bring the benefits of Huyck service to you.

KENWOOD WOOL PRODUCTS

F. C. HUYCK & SONS

ESTABLISHED 1870

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Pacific Coast Representatives: Pacific Coast Supply Co., Pittock Block, Portland, Ore.; 805 White Bldg., Seattle, Wash.; 343 Sansome St., San Francisco, Calif.

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Pulp Exports Placed Under License Control

● On March 27th President Roosevelt signed a proclamation placing fifty-one additional articles, including wood pulp, under the export control system.

In recommending this action brigadier general Russell L. Maxwell, administrator of export control, stated that the interest of national defense makes advisable the placing of these items under control at this time.

The articles and materials, which may not be exported from the United States after April 15th without obtaining an export license, include various fats and oils, chemicals, wood pulp and miscellaneous items.

It was again emphasized by the administrator of export control that subjecting an article or material to the export licensing requirement does not indicate the establishment of an embargo, but simply makes available controls which can be utilized in varying degree if and when the need arises. Specific statement was made to the effect that control of fats and oils will be adjusted in such a way as to safeguard the competitive position of United States agriculture in foreign markets.

The proclamation was made under Section 6 of the act of Congress entitled "An Act to expedite the strengthening of the national defense," approved July 2, 1940, which provides as follows:

"Section 6. Whenever the President determines that it is necessary in the interest of national defense to prohibit or curtail the exportation of any military equipment or munitions, or component parts thereof, or machinery, tools, or materials, or supplies necessary for the manufacture, servicing, or operation thereof, he may by proclamation prohibit or curtail such exportations, except under such rules and regulations as he shall prescribe. Any such proclamation shall describe the aritcles or materials included in the prohibition on or curtailment contained therein. In case of the violation of any provision of any proclamation, or of any rule or regulation, issued thereunder, such violator or violators, upon conviction, shall be punished by a fine of not more than $10,000 or by imprisonment for not more than two years, or by both such fine and imprisonment. The authority granted in this section shall terminate June 30, 1942, unless the Congress shall otherwise provide."

Wood pulp was number 9 on the list and was described as "Purified wood pulp containing 80 per cent or more alpha cellulose." This description embraces, of course, all wood pulp.

As this is written it is not known whether export licenses will be freely granted or whether they will be restricted. Applications have been made through Customs officials for exports scheduled after April 15th, but will probably not be acted upon until after that date.

It is generally believed in the pulp industry that licenses will be quickly granted for exports to Great Britain and to countries in the western hemisphere in view of the federal government's policies of "all-out aid" to Britain and of supplying Central and South American nations with needed materials formerly obtained principally from Europe. Whether or not licenses will be granted for shipments to other countries, only time will tell.

The proclamation was issued through the Department of State in Washington. The Division of Foreign Tariffs, Bureau of Foreign & Domestic Commerce, advises that, "a further statement, specifying more precisely the products subject to license under these new controlled categories, is expected to be ready soon and copies will be available through the district offices of the Bureau of Foreign & Domestic Commerce."

Paper Festival Chairmen Named

● The first group of committee chairmen for the Camas Paper Festival, Camas, Washington, was made known by Frank Collins, general chairman, at a meeting of the association directors March 21st. Those named include H. J. Woodworth, reception and hospitality; Art Jones, parade; Lawrence Beauchamp, finance; John Lund, advertising and publicity; Lyall Bolton, decorations; V. A. Davis, entertainment; and Paul Millard, paper mill open house.

Mr. Davis is a paper maker and Mr. Millard is finishing superintendent for the Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, Camas. Mr. Davis is president of the paper makers' local.

Canada Stops Hemlock Log Exports to Japan

Hints that wood pulp will probably also be embargoed.

● The Canadian government has declared a virtual embargo on export of hemlock logs to Japan for pulp manufacture and given a pretty definite hint that it will not permit export of pulp to that country unless it can be demonstrated that the Oriental partner of the Axis will be unable to convert the material into munitions.

An order-in-council was passed by the government at Ottawa declaring that on and after April 1 special licenses would be required on all shipments of goods from Canada to countries outside the Western Hemisphere with the exception of the British Empire. No particular commodity was specified.

First direct application of this new order came in Vancouver, B. C., April 4th when licenses were refused the Nelson Spencer Company, log exporters, for the shipment of 3,000,000 feet of hemlock logs to Japan on the Japanese steamship Cuba Maru. After fruitless negotiation between Vancouver and Ottawa for several hours the Cuba Maru sailed without the logs.

It became evident that Canada has at last put its foot down on future export of logs to Japan—a business that for many months has been severely criticized. In the past the explanation was invariably given that the logs were from crown-granted lands and that while British Columbia could and would prevent export of logs from provincially licensed timber it had no authority over crown grants.

Last June the Canadian government cracked down on the export of Douglas fir logs, primarily because this class of timber was required by the British government and for Canada's own defense construction program. Hemlock fell in a different category, but when it was represented that the logs could conceivably be used in the manufacture of explosives Ottawa was prompt to take action, just as it had last fall in banning export of copper and scrapiron and in refusing to grant permits for the shipment of wheat and flour to Japan—the latter on the ground that it might be diverted through Russia to Germany.

The policy of the Canadian government towards pulp exports is not so definite as this is written, but up to April 7th no permit had been issued for the shipment of pulp to Japanese interests.

The company chiefly affected would be British Columbia Pulp & Paper Company, which used to regard Japan as one of its principal markets but which in the last two or three years has gradually shifted most of its sales to British and American customers.

Powell River Company and Pacific Mills, British Columbia's other leading pulp and paper exporters, do not regard total loss of Japanese business seriously as sales to that territory have been negligible in recent years. There was a time, however, when Japan used to buy 35,000 to 40,000 tons of newsprint in British Columbia annually.

Canada's wartime policy has had the effect of gradually throttling down a trade which in pre-war years amounted to more than $12,000,000, including lumber, canned salmon, cereals and general merchandise, copper, asbestos, lead and nickel as well as pulp and paper. It is doubtful whether Canada's sales to Japan this year will be 25 per cent of that figure this year. Canada has never bought from Japan in volume or value approaching her sales there. In 1939 Canada's imports from Japan were worth only $1,600,000, compared with exports of $8,500,000.

Log exporters were somewhat disturbed by the fact that the Canadian government gave them virtually no advance notice of the arbitrary action to be taken. The logs were all cut to the required Japanese length—12 to 24 feet, compared with the 30 to 40-foot lengths usually required by other markets. Just where these logs will be finally disposed of is uncertain. Japanese prices are the highest offered just now; American prices are next, and efforts may be made to dispose of the logs to Puget Sound mills. British Columbia mills have already made their log commitments for the immediate future.

Some of the logs were cut from the timber holdings of the Port McNeil Trading Company, Japanese-owned subsidiary of Nippon Soda Company of Kobe, but others were from various Vancouver Island log operators who regarded the Japanese export market as a convenient outlet for logs not easily marketed in the domestic field.

Spokesmen for the exporters told PACIFIC PULP & PAPER INDUSTRY that they had planned to ship about two cargoes of hemlock and balsam logs monthly to Japan during the balance of the year, and that probably 60,000,000 feet of logs would have been thus disposed of.

RUSSELL M. COOPER, General Superintendent of the Powell River Company, Powell River, B. C. Mr. Cooper came to the Pacific Coast early this year from Baie Comeau, Quebec, where he was General Superintendent of the Quebec North Shore Paper Co., a 400-ton newsprint producer.

Canadian Industry Asks Tax Relief

● Canadian pulp and paper companies are hoping that the Canadian government will grant some concessions in respect to taxation, as under the new excess profits levy several concerns would be severely hit.

In 1939 the British Columbia Pulp & Paper Company laid aside less than $10,000 for income tax. This year, according to the report issued recently, the company is setting aside $850,000 on that account, which indicates the tremendous increase in taxation and the possible effects on earnings.

The excess profits tax, as at present constituted, amounts to 75 per cent of the difference between profits of the year of taxation and the profits of the standard or base period. British Columbia Pulp is vulnerable under this law because after several lean years it enjoyed a tremendous revival in business in 1939 and especially in 1940, although earnings of the last two years will largely be required to recoup previous losses.

The pulp and paper industry has been offered the opportunity of submitting individual cases to boards of referees appointed under the excess profits legislation. The industry as a whole as well as individual companies, including Powell River Company, Pacific Mills and British Columbia Pulp, have filed applications with the tax board asking for classification as "depressed" businesses.

Inasmuch as most companies made little or no profit in years immediately prior to the war, their case would appear to be a strong one, particularly as the excess profits as well as other taxes, if applied to the full extent, would take up most of the current earnings and leave relatively little to stockholders, who have waited for many years for a return on their investment.

Claim for consideration as an industry vital in developing exchange would arise from the provision in the Canadian War Exchange Conservation Act which empowers the government to make special agreements on taxes where "such assistance is necessary in order that an expansion of the exports of any individual partnership or corporation receiving such assistance may take place."

This provision was made to apply to gold mining specifically and was aimed to permit marginal mines to continue in operation and stimulate expansion of gold shipments to the United States, to bring in added exchange credits.

The Canadian newsprint industry is expected to create some $140,000,000 in U. S. exchange this year, and in this respect is vital to the country's war effort. Whether it can be established that special tax concessions to newsprint producers would increase the flow of U. S. exchange to Canada might be a question, but the industry's importance to Canada

is being stressed in efforts to obtain special tax treatment.

Another factor favoring British Columbia companies is that in the past they have been largely dependent on the Australian and Far Eastern markets. Through no fault of their own these have been severely curtailed since the war. Australia has restricted purchases of pulp and paper due to exchange and other reasons, China has been buying sparingly and Japan is now virtually under an embargo imposed by the Canadian government.

When the new Canadian budget is brought down in a few weeks provision may be made for some of the concessions the industry is seeking.

St. Helens Installing Additional Screens

● St. Helens Pulp & Paper Company at St. Helens, Oregon, is installing two batteries of Smythe Multiplate flat screens for improving the cleanliness of its pulp. There are three 14-plate screens in each battery equipped with all bronze vats and eccentric drives.

The first battery of screens was installed at the end of March and the second will be in operation the middle of April. Ray Smythe of Portland manufactured the screens.

Rybergs Take Vacation

● J. E. Ryberg, mill manager of St. Helens Pulp and Paper Company, St. Helens, Oregon, left by automobile March 30th with Mrs. Ryberg, for a six weeks' vacation. The scheduled trip includes visits to their former home in Louisiana, to Iowa, and to Chicago.

Oregon State Students Visit Pulp, Paper Mills

● Dr. Leo Friedman, assistant professor of chemistry, Oregon State College, Corvallis, Oregon, and ten students of the college, visited the mills and laboratories of Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, Camas, Washington, and Longview Mill, Pulp Division Weyerhaeuser Timber Company at Longview, on April 1st and 2nd.

Collier Hears From Heikki Sihtola

● Word from a former visitor to the Northwest pulp mills was received recently by Sidney Collier, foreman at Puget Sound Pulp & Timber Co., in Bellingham, in a letter from Heikki Sihtola of A. Ahlstrom O Y of Warkaus, Finland. Mr. Sihtola was a student who studied at the Soundview and Weyerhaeuser mills during 1937 and who went back to Finland to become assistant technical director of the Warkaus mill. He reports that a considerable tonnage of pulp is going into cattle fodder. Farmers in Finland are required to use a certain percent of the pulp before receiving their quota of hay.

During the Finnish-Russian war Mr. Sihtola served as an officer in the Finnish Army but is now back in Warkaus with his wife and year-old son, Karri.

Columbia River Installing Acid Accumulator

● The steel structure of the 29-foot in diameter spherical acid accumulator under construction at Columbia River Paper Mills, Vancouver, Washington, has been completed and, according to N. G. Teren, vice-president and manager, will be lined, ready for operation in late May or early June. With the addition of this unit to the system the capacity of the plant will be increased 40 or 50 tons per day, releasing a digester for normal digester operation which has been used as an acid accumulator.

Bill Lewis Arrived On March 9th

● A second boy has arrived at the household of J. R. Lewis, superintendent of the Anacortes Pulp Company, Anacortes, Wash., in the person of William Roger Lewis whose birth occurred the ninth of March. Little Bill has a five-year-old brother Jack.

Pete Onkels' Pointer Wins Prize

● Besides turning out good tissue products, P. J. "Pete" Onkels, superintendent of the Pacific Coast Paper Mills, Bellingham, turns out some fine Pointers. His entry, Golden Bess, took second place in the British Columbia field trials at Ladner, B. C. Pete plans to enter her at other trials on the Coast.

Killam Appointed Head Of Survey Committee

● Lawrence Killam, president of B. C. Pulp & Paper Company, has been appointed chairman of a committee to make a survey of British Columbia's capacity for wartime industrial production.

Another member of the committee is R. W. Mayhew, president of Sidney Roofing Company, Victoria.

The only other British Columbia representative is a public utilities executive. They will serve with a rearadmiral of the British navy, Frank Ross, director of naval production for the Canadian government's department of munitions and supply, and others.

Longview Fibre Expanding Office

● A two-story wing is being added to the office building of Longview Fibre Company, Longview, Washington. This addition is to be used to increase the general office space, according to R. S. Wertheimer, vice-president and resident manager.

Tissue Bowlers Make It Three Straight

● The bowling team of Pacific Coast Paper Mills of Bellingham is again the champion of the Industrial League of Whatcom County. This makes it three times in a row for the boys from Army Street.

Spaulding Improving Mill at Newberg

● The Spaulding Pulp & Paper Company at Newberg, Oregon, has over the past year carried out a program of improvements to keep the unbleached sulphite pulp mill in first-class condition. Some of the improvements have been replacement jobs whereas others have been additions to the equipment.

During last year two wooden filter tanks were built and installed to filter the acid coming from the towers before it is pumped to the storage tanks, which are also of wood. Of the three acid storage tanks one is new and the other two are to be replaced in the near future.

The iron pipe throughout the plant is to be replaced shortly by wood and copper pipe. Some of the wood pipe has already been installed. According to James B. Wilt, manager, all acid lines, relief lines, valves and fittings in the digester building are to be replaced with Esco stainless steel. An Esco stainless steel blow pit bottom has recently been installed.

In the wood room of the mill a vertical splitter has been replaced with a modern Hesse-Ersted Iron Works horizontal splitter, and a Carthage 90-inch, 10-knife chipper "of the latest design," is now in course of manufacture; as is a 7½ by 20-ft. Hesse-Ersted chip screen.

The flat screens and flow boxes are being rebuilt. Bronze frames are to be installed to support the screen plates.

Installation of a Bingham feedwater pump, driven by a 75 horsepower steam turbine was completed and placed in operation early in April. This pump provides water for the three boilers and replaces an electrically driven pump which is to be maintained as an emergency relief unit. Another turbine installation for the near future is a 150-horsepower unit driving the pulp drying machine, which is now driven by an electric motor. Exhaust steam from the turbines is to be used for drying the pulp.

With pumping installation now being installed stock will be pumped from the rifflers to the screen by a Bingham pump delivering 10,000 gallons per minute, which will be driven by a 100 horsepower Westinghouse electric motor.

Late last fall a new boiler was installed and one of the two older boilers is to be rebuilt shortly.

Two Esco stainless steel cooler units for cooling relief gases will be in operation by the end of May. One is already installed. With the completion of these Spaulding will have three stainless steel cooler units in operation.

Adequate sewerage is now afforded the plant as a complete new system has recently been built and put in operation. The previous system was somewhat inadequate for the mill capacity.

Wooden rifflers of the Spaulding mill are to be replaced shortly with concrete rifflers which will be larger and more efficient than present rifflers. New flow boxes are yet to be installed.

Improvements have not been confined to the manufacturing facilities, for the office building has been remodeled, repainted and a wing has been built, housing a fireproof vault in which the company records are kept.

Plans Made For Joint Meeting in Portland

Superintendents and TAPPI to hold annual meeting at the Portland Hotel, Portland, Oregon, June 6-7th

PLANS are being developed rapidly for the annual joint meeting of the Pacific Coast Division of the American Pulp & Paper Mill Superintendents Association and the Pacific Section of TAPPI, according to general chairman Harry S. Richmond, chief engineer of the Electric Steel Foundry Company. The 1941 meeting will be held Friday and Saturday, June 6 and 7th at the Portland Hotel, Portland, Oregon.

Friday morning will be given over to visits to the mills near Portland and in the afternoon a golf and a bowling tournament will be held. The latter is a new feature at Pacific Coast meetings and was placed on the program by chairman Richmond upon his learning that there are a number of expert bowlers among the pulp and paper men and their wives. Friday evening an informal party will be held.

Oliver Porter to Speak

● The Saturday program will start with a breakfast for the men at 8:30 a. m. in the Portland Hotel. Following the breakfast the papers will be presented. These will be announced later on as the entire program of papers was not complete at the time of going to press. A short business session will be held before luncheon by the Pacific Section of TAPPI for the purpose of electing new officers for the 1941-1942 year. The Superintendents elect officers at their December meeting.

At 12:30 p. m. the men will attend a luncheon and hear a talk by Oliver M. Porter, executive director of the United States Pulp Producers Association of New York City, on the world pulp situation.

Afternoon Session

● An individualized discussion relating to industry problems, analyzed and presented from an engineeering point of view, will feature the afternoon program on Saturday. Leaders will be selected from both associations to head the discussions. Pulp makers' and paper makers' problems are on the discussion schedule. Electrical and power engineering angles are to be given special consideration.

● Plans are being made for Friday night's party under the supervision of the ladies' committee. An orchestra, refreshments and other attractions are included on the evening's program.

No admission will be charged, but each person will have to wear a hat to be admitted, or in other words, a head-tax will be levied. Hat, in this instance, meaning anything worn on the head—from a birds nest to a paper cup.

Several prizes will be awarded for the outstanding ladies' and men's hats, including the most ingenious, most unique, most beautiful and most talked-about.

Saturday Evening

● The meeting will close with a banquet and dance at the Portland Hotel on Saturday evening.

Officers Plan Program

● The above program was worked out at a meeting in Portland April 3rd by the officers of the Superintendents and of TAPPI meeting with general chairman Harry Richmond. Attending this meeting were Niles M. Anderson, chairman of the Pacific Coast Division of the American Pulp & Paper Mill Superintendents Association and general superintendent for the St. Regis Paper Co., Kraft Pulp Division, Tacoma, who flew to Portland for the meeting; Merrill E. Norwood, first vice chairman of the Superintendents and paper mill superintendent for the Columbia River Paper Mills, Vancouver, Washington; George H. McGregor, second vice chairman of the Superintendents and general superintendent, Longview Mill, Pulp Division Weyerhaeuser Timber Company, Longview.

Fred A. Olmsted, chairman of the Pacific Section of TAPPI and technical supervisor, Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, Camas, Washington; Carl E. Braun, vice chairman, Pacific Section of TAPPI and vice chairman and mill manager of the Hawley Pulp & Paper Company, Oregon City, Oregon; and V. L. Tipka, research engineer, Hawley Pulp & Paper Company, Oregon City, Oregon.

After the meeting general chairman Harry Richmond announced the appointment of the following committee chairmen: Registration, E. G. "Sid" Drew of Drew & Hoffman, Portland; Golf, Don L. Shirley, manager, Link-Belt Company, Portland; Mill Visits, Carl E. Braun, Hawley Pulp & Paper Company, Oregon City; Bowling, Norton Peck, Pacific Metal Company, Portland; Technical Program, Merrill E. Norwood, Columbia River Paper Mills, Vancouver, Washington, and Carl E. Braun, Hawley Pulp & Paper Company, Oregon City, Oregon, co-chairmen; Breakfast, Zina A. Wise, Vice President Griffith Rubber Mills; and Publicity, Ray Smythe, Rice Barton Corporation, Portland.

Mrs. William C. Marshall was appointed chairman of the Ladies Entertainment Committee. Mrs. W. H. Williamson, Mrs. Anton P. Siebers, Mrs. Carl E. Braun, Mrs. R. S. Carey and Mrs. A. G. Natwick will assist Mrs. Marshall in making plans for the entertainment of the ladies attending the meeting.

Reservations

● Reservations should be sent to Mr. Harry H. Richmond, Electric Steel Foundry Company, 2141 N. W. 25th Avenue, Portland, Oregon.

Rates at the Portland Hotel will be found to be reasonable and it is the intention of the general chairman to keep the cost of the joint meeting down.

Annual Joint Meeting

of the Pacific Coast Division, American Pulp & Paper Mill Superintendents Association and the Pacific Section of TAPPI, will be held JUNE 6-7th at the PORTLAND HOTEL, PORTLAND, OREGON.

Reservations should be sent to General Chairman Harry H. Richmond, Electric Steel Foundry Company, 2141 N. W. 25th Avenue, Portland, Oregon.

British Columbia Report For 1940 Shows Big Gain

● A five-fold increase in operating profits last year is reported by B. C. Pulp & Paper Company, whose mills at Woodfibre and Port Alice have been uninterruptedly busy since the beginning of the war manufacturing bleached sulphite and rayon pulp.

Operating profits for the year 1940, after charging $6,937 for depletion of timber limits, was $2,308,655, compared with operating profits in 1939 amounting to $435,055, after deducting $2,155 for depletion.

This increase is reflected in an increase of $633,659 in net current assets in the year, bringing working capital to $777,129.

Production during the year under review amounted to more than 100,000 tons of pulp, according to President Lawrence Killam, who added in his report that prices appeared to be stabilized to the extent that wide variations are not expected during the coming year.

Interest on the company's 6 per cent first mortgage gold bonds was paid in full November 1, 1940. No interest was paid on the company's 7 per cent general mortgage gold bonds. No dividends were paid.

Under present conditions the earning of foreign funds from the export of over 90 per cent of the company's products is of national importance, states Mr. Killam, commenting on the part the company is playing in maintaining Canadian credit in the United States.

The balance sheet at the end of 1940 showed property account at cost of $11,051,269, an increase of $280,570 in the year. After $87,213 for depletion of timber limits and $3,963,616 for depreciation, the statement carried property at $7,000,440. Investment in bonds of or guaranteed by the Canadian government amounted to $20,967 (market value $22,850) deposited in trust as security for payment of annuity, etc.

Current assets totalled $2,093,190, of which inventories accounted for $1,456,230. Deferred charges of $164,561 brought total assets to $9,279,159.

Funded debt is unchanged from the 1939 statement at $4,354,000. Deferred interest is $860,445; current liabilities of $1,316,061; special reserve of $328,419 and reserve against future depreciation of inventories $97,000 and $3,556,200 for capital stock bring total liabilities to $10,512,125. The difference of $1,232,966 between assets and liabilities represents the deficit in the profit and loss account.

Current assets at the end of 1940 were more than $5,000 less than at the end of 1939. The improvement in working capital was due to a reduction of $638,933 in current liabilities during the year. Bank loans (secured) shown at $1,609,000 in 1939 statement were completely absent from the 1940 report.

Accounts and wages payable were shown at $424,584 at the end of last year, compared with $334,944 at the end of 1939, while reserve for income and other taxes was $860,172 against $11,110. Balance of the liabilities at the end of 1940 consisted of $31,305 in bond interest accrued.

As explained by Mr. Killam, some alleviation in the taxes for 1940 is anticipated in view of the company's ability to qualify as a depressed industry during the four-year standard period ended December 31, 1939. Until the tax position has been clarified the company is setting aside $850,000 for all income taxes, this being included in the reserve of $860,171 shown in the current liabilities.

The following is a summary of profit and loss account for 1940 compared with 1939:

	1940	1939
Operating profit	$2,308,655	$ 435,055
Add investment income	1,094	900
	$2,309,749	$ 435,955
Deduct:		
Directors' fees	$ 3,000	$ 3,000
Executive remuneration and legal exp.	48,710	32,295
Bond interest	327,150	313,642
Provision for:		
Future depreciation in inventory values	97,000	.....
Depreciation of properties	643,000	225,000
Income and E. P. taxes	850,000	9,200
Total deductions	$1,968,860	$ 583,137
Profit for year	340,889	*147,182
Previous deficit	1,573,855	1,426,673
Deficit at Dec. 31	$1,232,966	$1,573,855

*—Loss.

Camas Men Receive Awards for Ideas

● Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, Camas, Washington, recently presented two-dollar cash awards to several employees in recognition of constructive ideas submitted to the company. Among those receiving awards were E. E. Mayfield, who received two awards, Carl F. Schwanz, L. O. Hutchison, A. B. Wright, Wilford H. Faler, H. Husby, H. A. Tiffany, and Henry Foster.

Asphalt Sold In Cartons

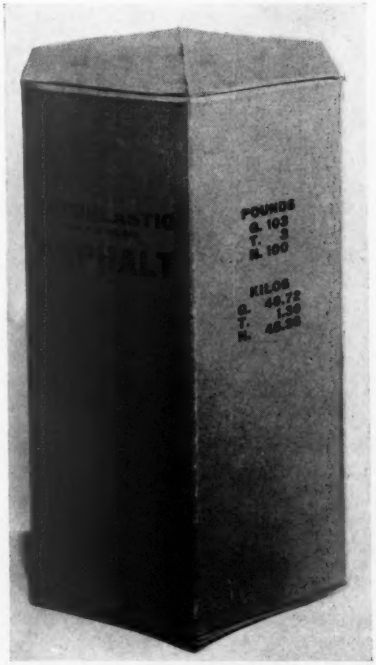
● About four years ago Standard Oil Company of California pioneered the packaging of its high-melting point asphalt in hexagonal 60-point fibre cartons, constructed like the cell of a honeycomb.

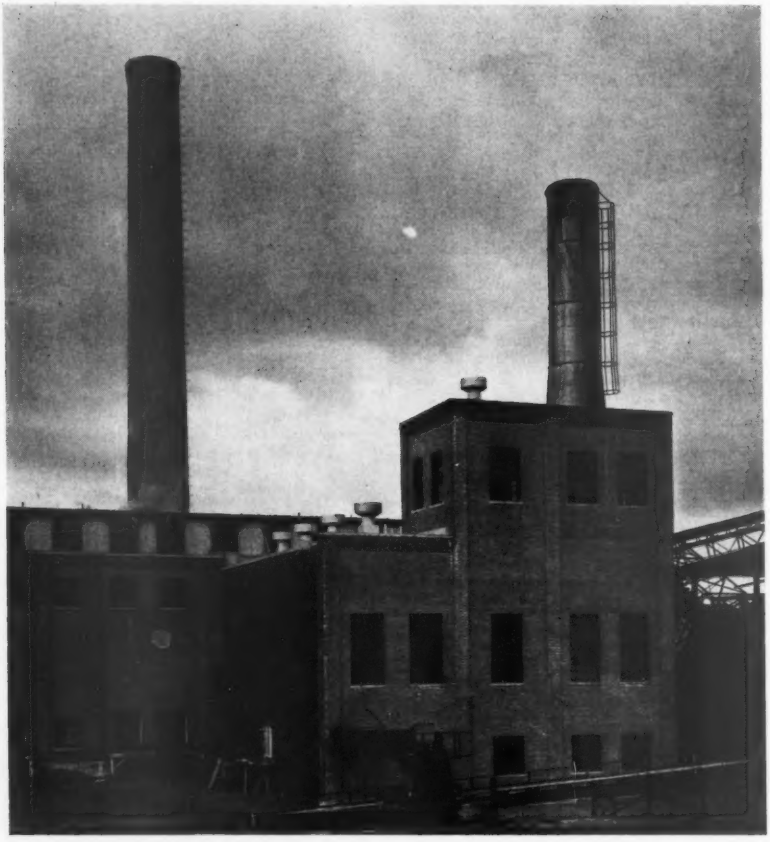
At first this carton had a separate top but recently it has been evolved into a one-piece fireboard package with a patented closing feature of folding and interlocking flaps, which are machine-stapled into place. Each carton is given a special clay lining to prevent the hot asphalt from sticking to it. This type of package was the result of considerable earlier experimental work in the packaging and shipment of asphalt in multi-walled paper containers. Prior to this time wood and steel barrels had been the only type of containers satisfactorily adapted to the packing of asphaltic material.

A barrel of asphalt weighs about 450 pounds, and it was felt that a lighter and more easily handled package would find considerable favor with the consumer. This was the principal reason for the adoption of paper containers of 100 pounds capacity. The Fibreboard cartons were made hexagonal in shape for close nesting with a corresponding reduction in storage space for warehousing or water shipment where the rates were based on the volumetric basis.

Numerous improvements have been made in the carton itself during the past four years, but the hexagonal shape has been retained, both for its nesting value and the additional strength which is built into the carton by this construction.

The introduction and adoption of this paper package has made possible the distribution of asphaltic materials in smaller quantities than heretofore and a market not reached by barreled asphalts is made available. The package has met with almost universal approval by roofing and building industries handling the major portion of this business, and there is a possibility that some type of fibre package can ultimately be utilized for shipment in barrel sizes.





The new No. 6 boiler building of concrete, brick and steel, showing the penthouse for the induced draft fan on the roof and the 40-foot steel stack . . . At the left is the original steam plant building with the concrete stack for the five other boilers.

Soundview Expands and Modernizes Steam Plant

Design and arrangement of the new No. 6 Boiler and auxiliary equipment are unusual and highly efficient.

As the world's largest single unit producer of bleached sulphite pulps, the Soundview Pulp Company of Everett, Washington, requires a large quantity of steam to cook and dry its daily average production of 500 tons.

Today the mill needs 7,000,000 pounds of steam every 24-hours and its generation must be economical as well as dependable. When production in the mill at Everett began in 1930 the daily output was but 160 tons and the steam requirements were not as severe. The original boiler plant has been modernized and expanded to keep pace with production of pulp, the latest step being the installation of No. 6 boiler which went on the line early in December, 1940.

The new No. 6 boiler and its auxiliary equipment are housed in a new wing of the steam plant. The equipment selected and the arrangement of it make an interesting and informative story for steam engineers and production executives, especially here in the Pacific Northwest where hogged waste, known as hog fuel, is the principal fuel used for industrial steam generation.

The present efficient steam plant at Soundview has evolved over a period of ten years from the original plant consisting of four 869 h.p. 250 lb. pressure Stirling type boilers equipped with plate air heaters. In 1935, to reduce maintenance, all four of these boilers were rebuilt and equipped with Bigelow-Liptak air cooled walls.

The pulp production was expanded in 1937 and to supply the necessary steam a fifth 869 h.p. boiler was added, a duplicate of the original four. The maximum requirements of the expanded mill for cooking and drying was raised to 7,000,000 pounds of steam per 24-hours. This demand exceeded the steaming capacity of the five boilers on the basis of hog fuel alone, and it became necessary to supplement the firing with fuel oil.

The high capacity required of the boilers on combined hog fuel and oil firing caused severe wear on the settings and necessitated frequent and expensive maintenance. The availability of the boilers was reduced due to the shutdowns for repairing and cleaning. It became difficult to maintain them during the normal mill shutdown periods and at times it was necessary to shut down one of the boilers while the mill was operating. The other four had to carry the entire load during these periods.

An exhaustive study of the steam problem was made by the Soundview Pulp Company under the direction of J. H. McCarthy, resident engineer, for the purpose of de-

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termining the best plan for increasing the boiler plant capacity. Major considerations involved in this study were high efficiency, continuous service without interruption to pulp production and the elimination of the cinder nuisance.

Studies revealed that it was feasible to rebuild the existing boiler units so as to reduce the maintenance required to keep them operating efficiently but that the old boilers could not be altered to give sufficient increased capacity. It was necessary to add a sixth boiler to obtain needed capacity and provide a margin of safety over cooking and drying requirements.

Plans were drawn to house the new boiler unit in an addition to the existing steam plant at the northwest corner. In the spring of 1940 a contract was let to the Austin Company for the construction of the addition of concrete, steel and brick.

The contract for the installation of all equipment was placed with C. C. Moore & Co., Engineers.

THE COVER PICTURE

Shows the interior of the combustion chamber of the Soundview Pulp Company's new No. 6 Integral Furnace type boiler, looking directly at the three Babcock & Wilcox auxiliary oil burners and the throat of the two-cell extension furnace.

The stud tube chrome ore curtain wall used for drop nose also shows as does the smooth Bailey Block floor with the two rows of pinhole grates.

The design of the building, the selection and coordination of mechanical equipment was made by Soundview's engineering department under Mr. McCarthy's supervision. Each piece of equipment was selected for its ability to give economical, dependable, trouble-free service with minimum outage.

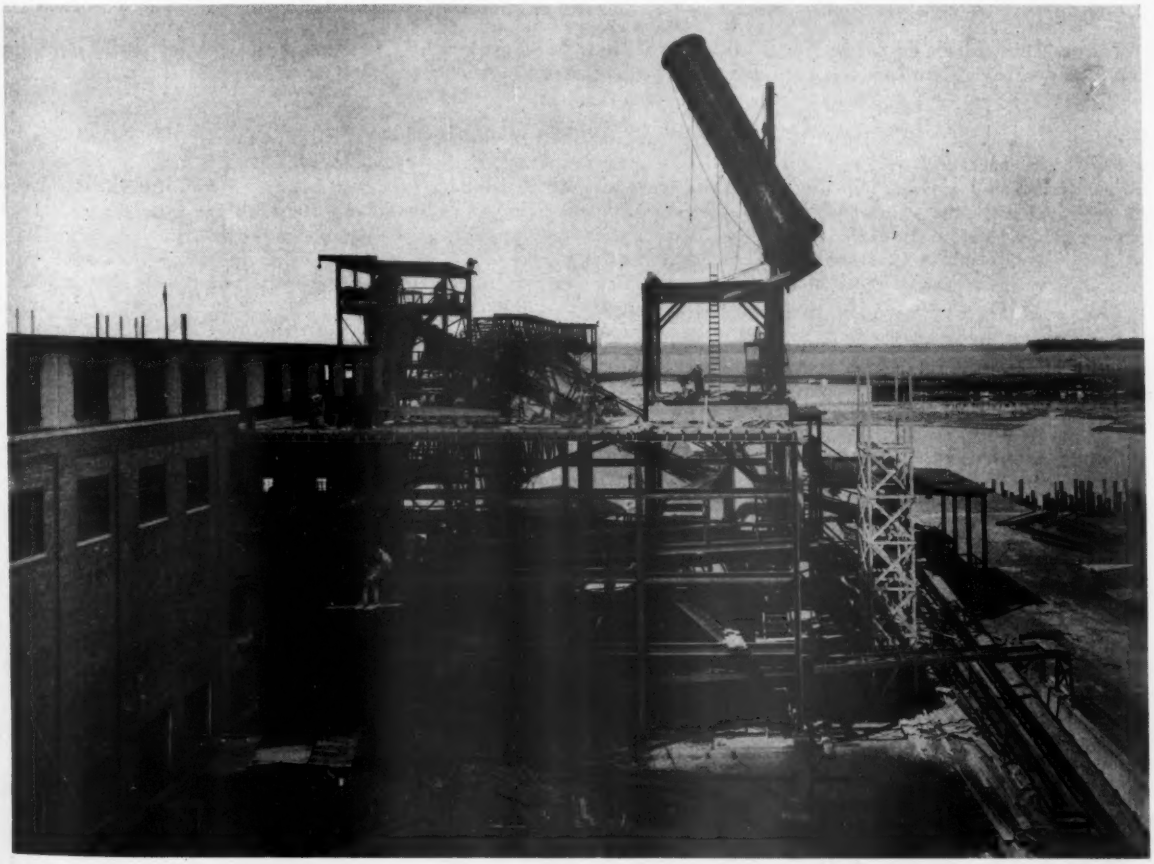
A cross section drawing shows the unusual arrangement of the building, boiler unit, cinder catcher, conveyors and other equipment.

The Boiler Unit

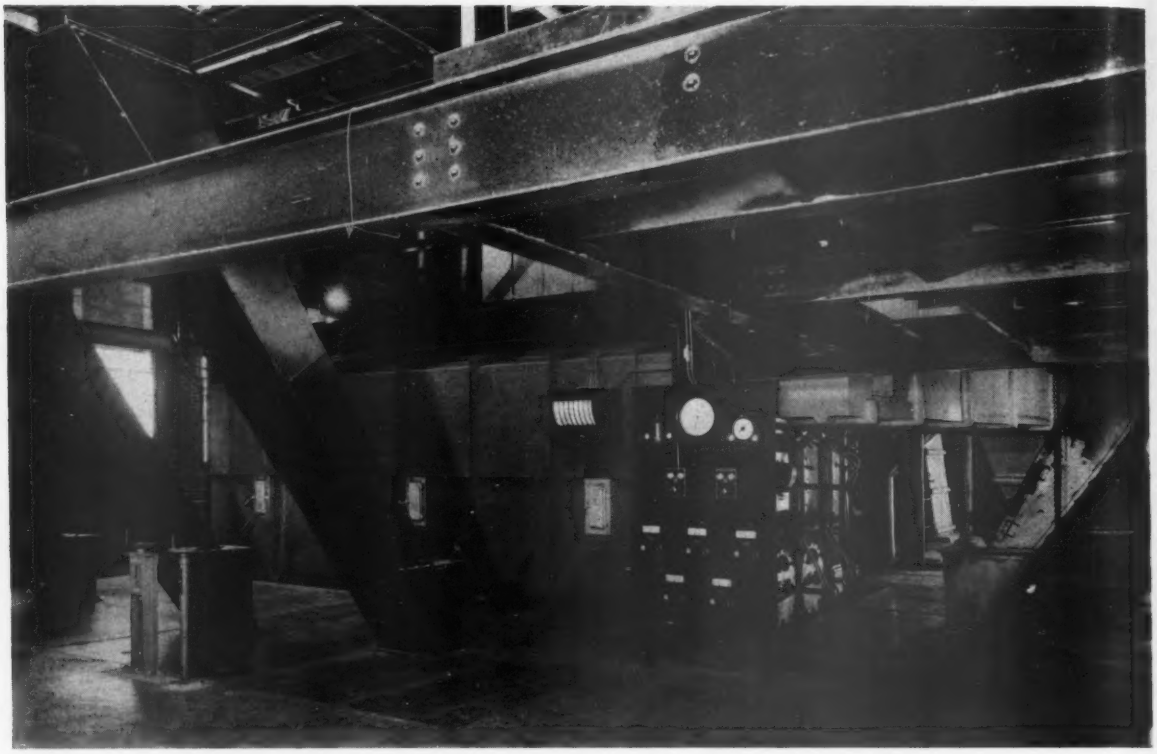
● The Babcock & Wilcox Integral-Furnace boiler unit consists of an integral-furnace boiler, 250 pounds design pressure at 460 degrees Fahrenheit for a maximum continuous production of 120,000 pounds of steam per hour.

As hog fuel is the major fuel, adequate consideration was given to the arrangement of furnaces, boiler heating surfaces, superheater and air heater. The integral-furnace boiler permits the compact arrangement of extension furnaces having five cells, with a 40-foot total front footage of water-cooled grates. A stud tube wall replaces the drop nose ordinarily used as it serves the same purpose and requires no maintenance.

To prevent slagging of the boiler furnaces from impurities present in hog fuel, due to storing logs in salt water, and to reduce the temperature of gases entering the boiler surfaces, the boiler unit was provided with a completely water-cooled combustion chamber. This chamber has



The new Soundview boiler plant as it appeared on August 2, 1940 ' ' ' Note steel stack being lifted into position on top of induced draft fan housing on roof ' ' ' Concrete slab roof has already been poured as have foundations for furnace and air preheater.



View on firing deck showing No. 6 boiler unit, hog fuel chutes, oil burners, draft gauge, panel containing Bailey Meter Combustion Control units and temperature controllers for water-cooled grates.

stud tube side walls, bare tube target wall and bare and stud tube oil burner wall. To provide for long flame travel from the extension furnace cells, a stud tube idle pass baffle was provided across the entrance to the first pass of the boiler.

The addition of the idle pass baffle serves to give a two pass arrangement to the furnace, and by adding a right angle turn, a great deal of the fly ash carried over from the extension furnaces is thrown out at the end of the baffle into the ash pit from which it is easily removed.

A water-cooled floor consisting of Bailey-Blocks fastened to the floor tubes is provided, giving a smooth cast iron surface. Two rows of pin hole grates, included in the floor, permit the continuous burning up of the wood charcoal on the combustion chamber floor, preventing the building up of the carryover. Because of the water-cooled construction of the combustion chamber floor, there is no difficulty in removing the ash from the combustion chamber during boiler operation.

At times it is necessary to burn 100 per cent Western hemlock hog fuel containing 57 per cent moisture. This led to the selection of a large, efficient tubular air heater for furnishing preheated air to the extension furnaces at a temperature in excess of 570 degrees. The new No. 6 boiler unit was designed to be exceptionally flexible as to the type of fuel used. The extension furnaces permit the burning of widely varying quality of hog fuel and the burning of oil in case of a hog fuel shortage or emergency.

Three steam mechanical oil burners are installed in the forced draft preheated air blast box in the burner wall over the two cell extension furnace. The unit can be operated at maximum efficiency on varying percentages of wood or oil or it can be operated on 100 per cent oil. For extended periods on oil firing, by temporarily sealing off the bridge walls in the extension furnaces, the unit will operate at 86.1 per cent boiler efficiency. This efficiency approaches that obtained in the very best public utility central station practice.

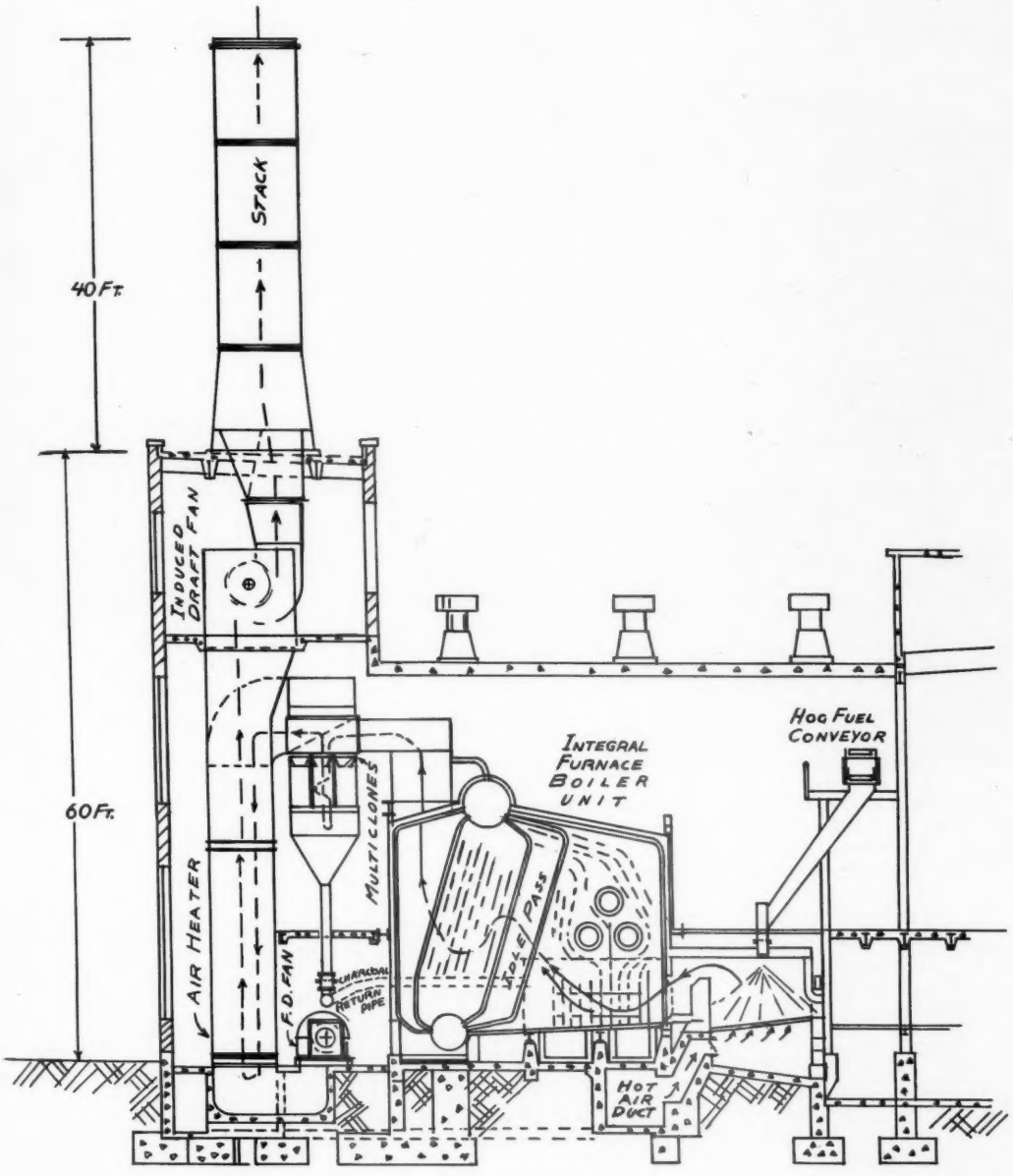
The boiler setting is constructed of Bigelow-Liptak materials. The extension furnace side walls are air-cooled while the boiler, burner and target walls are of Bigelow-Liptak construction insulated with high temperature insulation and finished with a smooth coating of plastic cement.

The boiler and superheater heating surfaces are cleaned with Diamond automatic valved soot blowers. The air heated is cleaned with Diamond straight line soot blowers.

Multiclone Cinder Catchers

● A detailed study was made of the cinder removal problem arising from the burning of hog fuel which produces a charcoal and fly ash of extreme lightness. The elimination of this material is of major importance in the manufacture of clean bleached sulphite pulp. Soundview also desired to eliminate charcoal and fly ash as it would be a nuisance to the citizens of Everett living on the bluff above the mill.

The Soundview engineering department decided after examining the effectiveness of other cinder removal systems, to install a Western Precipitation Multiclone unit. This is the first major installation of a Multiclone catcher on hog fuel. A unit of thirty Multiclone tubes was installed between the boiler and the air preheater. In this location the Multiclone protects the induced draft fan rotor and the air preheater from abrasion by the cinders.



SECTIONAL ELEVATION

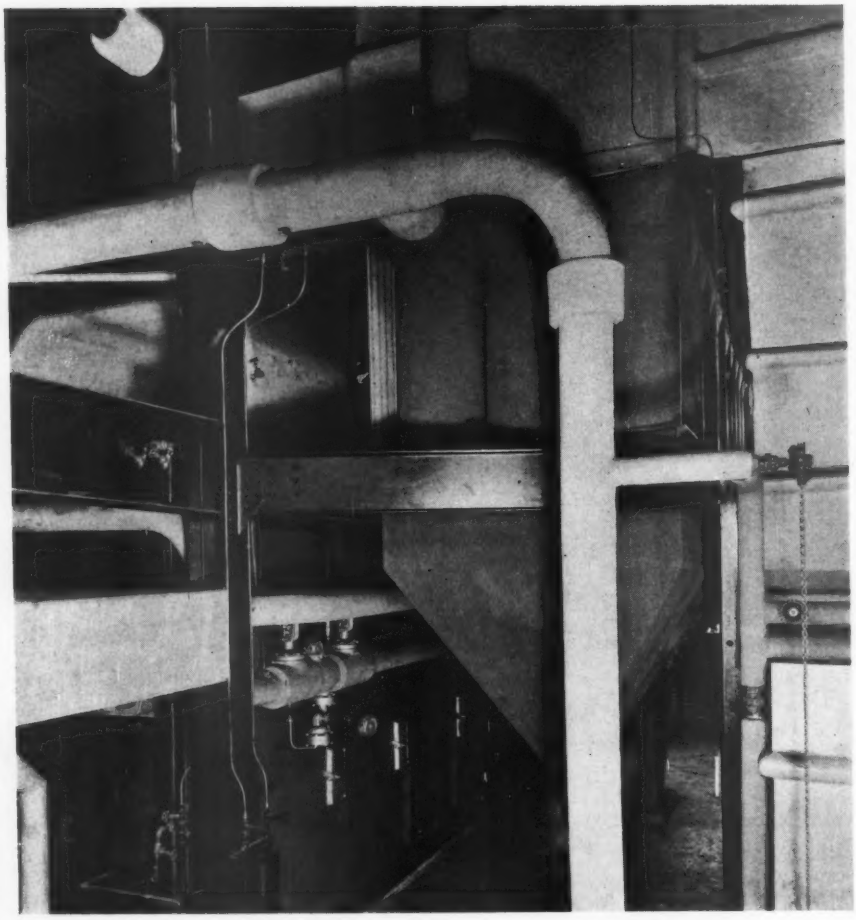
SCALE 1/16" = 1'-0"

SOUNDVIEW PULP CO.

EVERETT WASHINGTON

GENERAL ARRANGEMENT

#6 BOILER UNIT



The 30-unit Multiclone Cinder Collectors removing charcoal and fly ash from the exhaust gases of the new No. 6 boiler on the left before they pass through the tubular air preheater on the right . . . Induced draft fan and steel stack are on the roof directly above the preheater.

Recent tests on the Multiclone collecting ash from mixed fuel consisting of cuttings from logs just emerging from salt water, hemlock chips and dry fir cuttings, showed a stack loss of only .074 to .148 grains per cubic foot of gas with a pressure drop of 1.4 to 1.8 inches of water. Under normal ratings as tested the units collected 99 to 99½ per cent of all cinders over 200 mesh.

The charcoal is returned to the boiler extension furnace where it is burned.

By removing the cinders before the exhaust gases pass through the air preheater and the induced draft fan it was possible to employ a stack only 40 feet in height, on the roof directly above the induced draft fan. As the roof is 60 feet above ground level this gives the effect of a 100-foot stack without the expense of building one that high. And, as almost all the cinders are removed no higher stack is necessary.

The mounting of the induced draft fan on the roof simplified the duct work and placed the fan in a comparatively cool location. The stack was constructed of Mayari corrosion resistant steel.

General Electric turbine drives were provided for the forced and induced draft fans. The turbine drives readily permit changing the speeds of the fans and all exhaust steam is efficiently used by Soundview's pulp drying machines. The turbine drives act as reducing valves so the cost of driving the fans is kept at a minimum.

Instrumentation

● A full complement of instruments was provided for the new boiler and additional instruments were installed on the five existing boilers. One of the photographs shows the new panel board on which is mounted for each of the boilers a meter for recording the steam output, and a pyrometer for recording the air temperature of the air passing into the air preheater, the air temperature to the boiler, the temperature of the gas leaving the boiler and the temperature of the gas leaving the air preheater. As a check on combustion efficiency an indicating and recording CO_2 meter was installed. Multipoint draft gauges were installed at each boiler unit for the guidance of the boiler operators.

To maintain constant steam pressure as required for accurately controlling the pulp making process, the Bailey Meter Company's Combustion Control System was installed on the new boiler unit and on the two rebuilt boiler units.

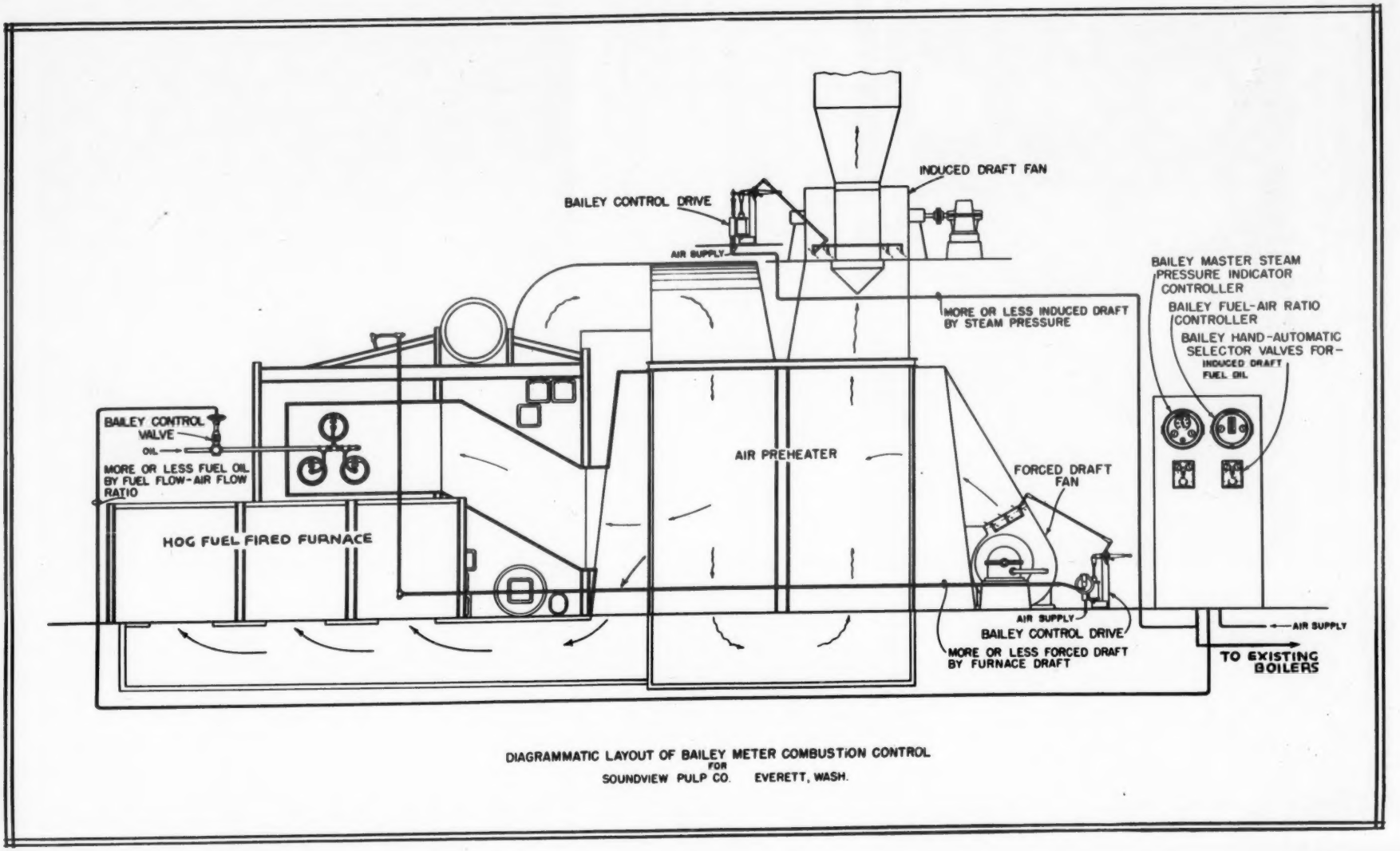
Bailey Combustion Control

● The system of Bailey Meter Combustion Control as shown diagrammatically in the accompanying drawing, maintains steam pressure within plus or minus 2 pounds by the automatic control of fuel and air to the combination hog fuel and oil fired boilers.

Furnace draft is maintained constant by the automatic regulation of the forced draft damper at the outlet of the forced draft fan. This is regulated by a Bailey air-operated control drive which measures furnace draft and continuously readjusts the position of the damper to maintain the desired draft in the furnace. It will be noted that the Bailey control drive is provided with a manual operating lever and clamping segment which may be used in case of air pressure failure.

The air supply to this boiler is automatically regulated in accordance with variations in steam pressure as measured by the Bailey master steam pressure indicator-controller mounted on the boiler panel board. This controller establishes a loading pressure which commands the control drive on the induced draft damper. If the steam pressure tends to rise, this damper is automatically throttled so that less air is supplied to the furnace.

When oil is used as an auxiliary fuel, the air flow across the oil burners is measured and the rate of flow is proportioned to this rate of air flow so that the oil is burned at maximum combustion economy. This is accomplished by the Bailey fuel-air ratio controller which automatically positions the fuel oil control valve in accordance with fuel-air ratio.



DIAGRAMMATIC LAYOUT OF BAILEY METER COMBUSTION CONTROL
FOR
SOUNDVIEW PULP CO. EVERETT, WASH.

General Electric Reducing Gear Turbine of 375 H.P. with an oil relay governor, driving the Clarage induced draft fan / / / Bailey Meter Damper Controller shows in lower left of picture / / / Turbine exhausts steam to pulp drying machines.

Bailey selector valves are provided for both the steam pressure control and the oil flow control. Recently Bailey controls were installed for two rebuilt existing water-wall hog fuel boilers and the controls interconnected to the new boiler. By use of their selector valves, the load may be divided between boilers so that any desired division of load may be obtained at all times. In addition to this feature, which permits proportioning of loads by automatic control, the selector valves may be used for the remote manual control of the uptake dampers of each boiler and of the fuel oil control valve on the new boiler.

The system is operated by compressed air at a pressure of approximately 35 pounds per square inch.

Rebuilding of Old Boilers

● Two of the existing boilers were rebuilt by adding Babcock & Wilcox bare tube water walls in the combustion chamber. The addition of the water walls reduced the temperature of the gases leaving the combustion chamber to a point where the fly ash and slag is below the sticky temperature when they reach the superheater zone.

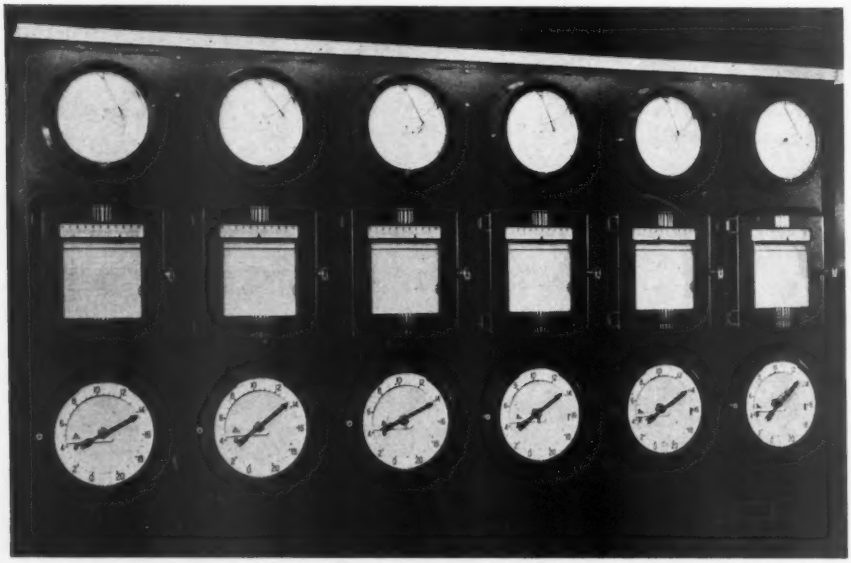
The length of time the boilers may be kept on the line without cleaning has been greatly increased. The cleaning problem has been simplified so that it is now possible to clean the accumulation off the boiler tubes with an air lance where formerly it was necessary to resort to mechanical scraping.

For standby use, each boiler was equipped with four steam mechanical atomizing oil burners.

The old plate type air preheaters were replaced with new Babcock & Wilcox tubular air preheaters. The temperature of the preheated air leaving the new air preheaters is 550 degrees Fahrenheit.

For cleaning of the air preheaters, Diamond straight line soot blowers are provided.

The Soundview Pulp Company now has a modernized, efficient steam generation plant capable of providing adequate quantities of steam for cooking and drying its 500 tons of pulp per day, with a sufficient margin in generative capacity to permit the shutdown of any one unit for repairs without affecting pulp production.



Control panel for Soundview's six boilers / / / Brown Instrument Flow Meters, Leeds & Northrup Micromax Temperature indicators and recorders and L&N Micromatic CO_2 indicators and recorders.

Lars Bratt's Ankle Now O. K.

● Lars C. Bratt, former technical secretary of the Swedish Association of Paper and Cellulose Engineers, is now back at the Puget Sound Pulp mill in Bellingham after being layed up with a broken ankle received in a skiing accident on Mount Baker. Mr. Bratt has been studying West Coast pulp methods since his arrival from Sweden in December.

Goodwin Undergoes Appendectomy

● T. R. Goodwin, chief paper inspector, Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, Camas, Washington, was operated on at St. Joseph hospital, Vancouver, Washington, on March 17, for an infected appendix. He returned to his home late in March.

NEW BOILER EQUIPMENT

NEW BOILER UNIT

BOILER—Babcock & Wilcox Co. Integral-Furnace Boiler.
Total Heating Surface—13,622 sq. ft.
Design pressure—250 pounds.

SUPERHEATER—Babcock & Wilcox Co. Drainable Loop Type.

AIR HEATER—Babcock & Wilcox Co. Tubular Type.
Two pass gas—single pass air.
1600—2½" O. D. No. 11 ga. 20 ft. long elements.

SOOT BLOWERS—Diamond Power Specialty Co.

FEED WATER REGULATORS—Northern Equipment Co.
2—4" No. SDS2 Copes Regulators.

BOILER SETTING—Bigelow-Liptak Co.
Air-cooled Extension Furnace Walls.
Suspended Boiler Walls.

OIL BURNERS—Babcock & Wilcox Co.
3—Steam Mechanical Forced Draft Preheated Air Type.

CINDER CATCHER—Western Precipitation Co.
24 V. D.—Size 15-3.
30 unit Multiclone.

INDUCED DRAFT FAN—Clarage Fan Co.
No. 15—RT fan with Louvre Dampers.

INDUCED DRAFT FAN DRIVE—General Electric Co.
No. D-60 Reduction Gear.
Turbine with oil relay gear.

FORCED DRAFT FAN—Clarage Fan Co.
No. 2½ W Forced draft fan.

FORCED DRAFT FAN DRIVE—General Electric Co.
No. D-59 Direct Connected Turbine.

WATER COOLED GRATES—Simeral & Drill.
"ECONOMY" Tubular copper bearing steel grates with wearing strips.

STEEL STACK—Puget Sound Sheet Metal Works Co.
Constructed from Bethlehem "Mayari" Corrosion-Resistant Steel.

NON RETURN VALVE—Lunkenheimer Co.
10" Angle Type.

PIPING—Crane Co.

INSULATION—Johns-Manville Co.
Applied by E. J. Bartells Co.

CONVEYORS—James Brinkley Co.

CONVEYOR FLIGHTS—Moline Malleable Iron Co.
Pangborn Flights.

FUEL CHUTES—Sumner Iron Works, Everett, Wash.

OIL HEATER—Braun Mfg. Co.

COMBUSTION CONTROL—Bailey Meter Co.
Air operated for hog fuel or oil firing.

INSTRUMENTS—CO_2 Recorder.
Leeds & Northrup Co.
5—Micromax Recording & Indicating Meters.

Temperature Recorders.
Leeds & Northrup Co.
6—Micromax Recording and Indicating Meters.

Flowmeters.
Brown Instrument Co.
2—Recording and Integrating Meters.

Grate Water Controllers.
Taylor Instrument Co.
5 Temperature Controllers.

TWO REBUILT BOILER UNITS

WATER WALLS—Babcock & Wilcox Co.
2—Sets Bare Tube Water Walls.

OIL BURNERS—Babcock & Wilcox Co.
2 sets of 4 each Steam Mechanical Oil Burners.

AIR HEATERS—Babcock & Wilcox Co.
2—Airheaters—690 2½" Od. 15 ft. long, No. 11 ga. elements each.

SOOT BLOWERS—Diamond Power Specialty Corp.
2—Straight Line Units.

COMBUSTION CONTROL—Bailey Meter Co.

INSULATION—Johns Manville Co.
Applied by E. J. Bartells Co.

Westminster Planning Improvements in Mill

• Making provisions for future expansion, as indicated in previous issues of PACIFIC PULP & PAPER INDUSTRY, Westminster Paper Company at New Westminster, B. C., has obtained the approval of that city's council for a new twenty-year lease on its plant site on the north arm of the Fraser River.

The new lease will replace two existing leases, which have approximately nine more years to run, the longer term being required to facilitate the financing of an expansion program involving at least $200,000.

It is understood that while the company plans to build additional structures to house its equipment, there will be no new lines of production. The company new produces a wide variety of specialties, wrapping paper, toilet tissues, sanitary papers, etc.

Original unit of the present plant dates from 1930 when it was built to replace the structure destroyed by fire in the summer of 1929. The 1930 plant cost about $700,000 and consists of a reinforced concrete building which with additions completed in the past few years covers 115,000 square feet with 700 feet of waterfrontage.

Daily production of paper specialties totals about 50,000 pounds. About a quarter million dollars has been spent on plant extensions since 1930.

During the same period the company has retired from earnings a $300,000 debenture issue and maintained a satisfactory working capital position.

Olmsted Returns From Eastern Trip

• F. A. Olmsted, technical supervisor, Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, Camas, Washington, and chairman of the Pacific Section of TAPPI, returned from a trip to the Atlantic coast March 18th. He left February 13th to attend the national meeting of TAPPI in New York. Olmsted visited several eastern mills and took a one-week vacation, visiting Boston, his old home.

Bill Donaldson Visits Coast Mills

• W. H. "Bill" Donaldson, secretary of Perkins-Goodwin Company, pulp brokers of New York City, was a Pacific Coast visitor in April.

Arriving in Portland Mr. Donaldson was met by J. B. Wilt, manager of the Spaulding Pulp & Paper Company of Newberg, Oregon, for whom the Perkins-Goodwin Company are agents. Following conferences with the Spaulding officers Mr. Donaldson visited the mills in Washington and the Woodfibre, B. C., mill of the British Columbia Pulp & Paper Company for whom the Perkins-Goodwin Company sells paper pulp in the United States.

Mr. Wilt joined Mr. Donaldson in Seattle April 7th for further conferences and left for Newberg on the 10th. Mr. Donaldson left Portland for New York the middle of April.

For a great many years Bill Donaldson has visited the Pacific Coast at least twice a year and he has a host of friends in this part of the country.

Tappi Concludes Series With Dinner at Port Angeles

● The sixth and last of the 1940-1941 dinner meetings sponsored by the Pacific Section of TAPPI, was held at the Port Angeles Golf & Country Club, Port Angeles, Washington, on Tuesday evening, April 8th, with 80 men in attendance.

Harold T. Fretz, chief chemist, Rayonier Incorporated, Port Angeles Division, was in charge of arrangements for the meeting.

Fred A. Olmsted, chairman of the Pacific Section, presided. Mr. Olmsted, who recently returned from an Eastern trip which included attendance at the annual meeting of TAPPI in New York City, reported on the meeting. It was the largest TAPPI meeting to date, Mr. Olmsted said, with over 900 registering. The technical sessions were well organized and the attendance was excellent.

Ray C. Austin, technical supervisor, Washington Pulp & Paper Corporation, Division of Crown Zellerbach Corporation, was the first speaker introduced by Chairman Olmsted. Mr. Austin's paper, published in this issue, was entitled, "Moisture In Newsprint." Discussion followed its presentation.

The second speaker was Howard W. Hall, chemical engineer, The Dicalite Company, Seattle, who spoke on "Diatomaceous Silica—How It Serves Industry."

W. R. Gibson, manager of the Northwest Filter Company, Seattle, presented a short outline of the Accelator's possibilities for economically clarifying water. A pilot Accelator is now operating at Longview on Columbia River water and as soon as complete data is available on the results a detailed paper will be presented at a TAPPI meeting.

Also scheduled for presentation was a sound moving picture, "The Story of Nitrocellulose," produced by the Hercules Powder Company. As the projector light burned out at the start the picture will be shown at a later meeting.

Chairman Olmsted called attention to the annual Joint Meeting of TAPPI and the Superintendents which will be held this year at the Portland Hotel, Portland, Oregon, June 6th and 7th. The registration fee will be as low as is possible, said Mr. Olmsted, to attract a large number of men.

It is expected that W. H. Swanson, president of TAPPI and R. G. Macdonald, secretary, will be present in addition to Oliver M. Porter, executive director of the United States Pulp Producers Association, who will be the speaker at the luncheon on Saturday, June 7th.

The advantages of membership in either the Pacific Section or in the national body were outlined by Mr. Olmsted, who urged those not now members to join and participate in the benefits.

In closing the meeting he thanked Vice-Chairman Carl E. Braun and his assistant Vernon A. Tipka of the Hawley Pulp & Paper Company, for arranging the Port Angeles program, and Harold T. Fretz for making arrangements for the dinner.

Six Dinner Meetings

● The Pacific Section of TAPPI held six dinner meetings during the 1940-1941 season. The first was held October 8th in Portland, the second on November 12th in Everett, Washington; the third on January 7th in Camas, Washington; the fourth on February 4th in Tacoma; the fifth on March 4th in Longview and the sixth on April 8th in Port Angeles.

Subjects presented and discussed, in the order of presentation were: "Stock Preparation, The Hydrafiner vs. The Beater," by Edward M. Root; "The Measurement of Wire Wear and Wire Life," by Milton J. Franklin; "Developing Leadership in Supervisory People," by L. A. Williams; "Cuprammonium Viscosity as a Pulp and Paper Mill Control Test," by E. D. Rich.

"Water Requirements in Pulp and Paper Manufacture," a symposium by William R. Gibson, Otto L. Hudrlik, Earl G. Thompson, G. O. Wilson, Brian Shera, and Edward P. Wood.

"Measurement of Vapor Pressures of Sulfurous Acid Solutions," by W. L. Beuschlein; "The Vortrap as a Means of Removing Dirt from Bleached and Unbleached Sulphite Pulp," by L. E. Stevenson; "Occupational Deferment from the Draft," by Captain Fairman B. Lee; "Botanical Studies of Pulp by Means of Mechanical Swelling," by Dr. Walter F. Holzer.

"Moisture in Newsprint," by Ray C. Austin, and "Diatomaceous Silica—How It Serves Industry," by Howard W. Hall.

The following men attended the dinner meeting held in Port Angeles Tuesday evening, April 8, 1941:

● **O. C. Abbott,** The Bristol Company, Seattle; **Fred Armbruster,** Dow Chemical Company, Seattle; **Ray C. Austin,** Washington Pulp & Paper Corp., Div. of Crown Zellerbach Corp., Port Angeles; **C. V. Basom,** Fibreboard Products Inc., Port Angeles; **T. H. Beaune,** Fibreboard Products Inc., Port Angeles; **Al Bibbins,** Electric Steel Foundry Co., Seattle; **James Brinkley,** James Brinkley Co., Seattle; **R. E. Bundy,** Fibreboard Products Inc., Port Angeles; **Clarence L. Bunge,** Crown Zellerbach Corp., Port Angeles; **Joe Bush,** Rayonier Incorporated, Port Angeles Division, Port Angeles.

Evert A. Carlson, Rayonier Incorporated, Port Angeles Division, Port Angeles; **O. S. Cauvel,** Washington Pulp & Paper Corp., Div. of Crown Zellerbach Corp., Port Angeles; **E. J. Cavanaugh,** Fibreboard Products Inc., Port Angeles; **Henry V. Charnell,** Rayonier Incorporated, Port Angeles Division, Port Angeles; **R. E. Chase,** R. E. Chase & Company, Tacoma; **Sidney M. Collier,** Puget Sound Pulp & Timber Co., Bellingham; **N. W. Coster,** Soundview Pulp Co., Everett; **J. V. B. Cox,** Hercules Powder Co., Portland, Ore.; **P. T. Dickie,** Washington Pulp & Paper Co., Div. of Crown Zellerbach Corp., Port Angeles; **E. F. Drake,** National Paper Products Co., Div. of Crown Zellerbach Corp., Port Townsend.

R. E. Drane, St. Helens Pulp & Paper Co., St. Helens, Ore.; **Raymond Dupuis,** Washington Pulp & Paper Co., Div. of Crown Zellerbach Corp., Port Angeles; **Conrad Dyar,** Rayonier Incorporated, Port Angeles Division, Port Angeles; **J. C. Fey,** Rayonier Incorporated, Port Angeles Division, Port Angeles; **Harold T. Fretz,** Rayonier Incorporated, Port Angeles Division, Port Angeles; **Wm. R. Gibson,** Northwest Filter Co., Seattle; **H. W. Hall,** The Dicalite Co., Seattle; **Dave Harris,** C. C. Moore & Co., Engrs., Seattle; **N. A. Hartnagel,** Fibreboard Products Inc., Port Angeles; **Wm. S. Hodgson,** Fibreboard Products Inc., Port Angeles; **C. F. Holcomb,** Edison Storage Battery Supply Co., Seattle.

Robert Holcomb, Fibreboard Products, Inc., Port Angeles; **James J. Hollender,** Hawley Pulp & Paper Company, Oregon City, Ore.; **Ivan R. Hoskins,** Hawley Pulp & Paper Company, Oregon City, Ore.; **Chas. A. Hulsart,** C. C. Moore & Company, Engrs., Seattle; **Medler Johnson,** Rayonier Incorporated, Port Angeles Division, Port Angeles; **B. L. Kerns,** Westinghouse Elec. & Mfg. Co., Seattle; **Glen D. King,** Washington Pulp & Paper Corp., Div. of Crown Zellerbach Corp., Port Angeles; **Carl R. Koch,** Westinghouse Elec. & Mfg. Co., Seattle; **H. A. Larsen,** Washington Pulp & Paper Corp., Div. of Crown Zellerbach Corp., Port Angeles; **R. A. Lawrence,** Fibreboard Products Inc., Port Angeles.

Don Lawson, Rayonier Incorporated, Port Angeles Division, Port Angeles; **R. E. LeRiche,** Brown Instrument Co., Seattle; **Norman A. Lewthwaite,** National Paper Products Company, Div. of Crown

Zellerbach Corp., Port Townsend; **Earl F. McLane,** Rayonier Incorporated, Port Angeles Division, Port Angeles; **Robert W. Martig,** Brown Instrument Co., Portland, Ore.; **Jack Martin,** Schorn Paint Mfg. Co., Seattle; **G. T. Mickel,** Rayonier Incorporated, Port Angeles Division, Port Angeles; **C. T. Mulledy,** Rayonier Incorporated, Port Angeles Division, Port Angeles; **Max R. Oberdorfer,** St. Helens Pulp & Paper Co., St. Helens, Ore.; **E. Eugene Olfson,** Fibreboard Products Inc., Port Angeles.

F. A. Olmsted, Crown Willamette Paper Co., Div. of Crown Zellerbach Corp., Camas, Wn.; **Gus Ostenson,** Crown Willamette Paper Co., Div. of Crown Zellerbach Corp., Camas; **R. K. Prince,** Pulp Bleaching Co., Wausau, Wis.; **W. H. Rambo,** Rayonier Incorporated, Port Angeles Division, Port Angeles; **Matt Rausch,** Washington Pulp & Paper Corp., Div. of Crown Zellerbach Corp., Port Angeles; **E. P. Read,** Washington Pulp & Paper Corp., Div. of Crown Zellerbach Corp., Port Angeles; **H. K. Roberts,** Washington Pulp & Paper Corp., Div. of Crown Zellerbach Corp., Port Angeles; **Walter A. Salmonson,** Simonds Worden White Co., Seattle; **Harlan Scott,** Pacific Pulp & Paper Industry, Seattle; **Brian Shera,** Pennsylvania Salt Mfg. Co. of Wn., Tacoma.

Edgar C. Sherman, National Paper Products Company, Div. of Crown Zellerbach Corp., Port Townsend; **Fred Sievers,** Crown Willamette Paper Company, Div. of Crown Zellerbach Corp., Camas; **Glen Simkins,** Rayonier Incorporated, Port Angeles Division, Port Angeles; **Henry Solbakken,** Rayonier Incorporated, Port Angeles Division, Port Angeles; **H. S. Sprague,** Rayonier Incorporated, Port Angeles Division, Port Angeles; **H. E. Springer,** Rayonier Incorporated, Port Angeles Division, Port Angeles; **James B. Symonds,** The Sinclair Wire Co., Seattle; **V. L. Tipka,** Hawley Pulp & Paper Company, Oregon City, Ore.; **R. M. True,** General Dyestuff Corp., Portland; **F. K. Van Etten,** School Dist. No. 7, Port Angeles.

J. V. Venables, Washington Pulp & Paper Corp., Div. of Crown Zellerbach Corp., Port Angeles; **H. A. Vernet,** A. E. Staley Company, San Francisco; **Russell O. Vognild,** Hooker Electrochemical Co., Tacoma; **L. Warwick,** Washington Pulp & Paper Corp., Div. of Crown Zellerbach Corp., Port Angeles; **Henry E. Weller,** Rayonier Incorporated, Port Angeles Division, Port Angeles; **C. Kelly Wells,** Seattle; **James W. Wenger,** Central Technical Department, Crown Zellerbach Corporation, Port Angeles; **C. M. Williams,** Rayonier Incorporated, Port Angeles Division, Port Angeles; **F. Leonard Ziel,** National Paper Products Company, Div. of Crown Zellerbach Corp., Port Townsend.

Moisture In Newsprint

by R. C. AUSTIN*

WHENEVER moisture testing of newsprint, or any paper for that matter, is mentioned, each of us feels, no doubt, that this is a problem we would like to understand better. The information presented in this paper will probably serve to make the fog a little denser, for it seems that the more we study and become intimate with a problem of this kind the more involved it becomes.

The three main topics to be discussed are:

1. The design and operation of a newsprint moisture testing oven.
2. Moisture changes in newsprint rolls during storage.
3. How relative humidity changes in the air at the dry end of the papaper machine affects the moisture of the issuing paper.

I

● The design of the moisture testing oven (see Figure 1) involves three innovations — none of them new or original, but all of them desirable. First, a temperature of 220° F. is selected as sufficiently high to remove moisture, and not high enough to remove an appreciable amount of the more volatile wood elements. Next, the paper is dried in a violent blast of pre-heated air forcibly circulated by a fan. And lastly, the heating elements are arranged so that there is no chance for radiated heat to strike the sample, and hence prevents "toasting" of the paper. The trays will hold a 12"x18" sample, and are so placed that the paper is held edgewise to the air blast. This keeps the air stream flowing smoothly at all times.

The air is heated by four electric heating elements of the screw-in type. Two of these are on the heating up circuit, and two are on a circuit controlled by a thermostat to within plus or minus 5° F.

The fan is of the centrifugal type and is driven by a ¼-horsepower motor and a V-belt on the outside of the oven.

Twelve to fifteen minutes is ample time to dry a sample of newsprint, consisting of 8 sheets 12"x18".

II

● This next topic is concerned with moisture changes and the affect on the paper of moisture changes during storage.

Almost invariably newsprint is stored in a warehouse where atmospheric conditions are somewhat different from those existing during manufacture, and proably the paper never has the correct original moisture content to keep it in equilibrium with the moisture in the air in the storage room. Unless it has been hermetically sealed then, there will be, no doubt, a gain or loss of moisture in the stored paper.

In order to study the affect of

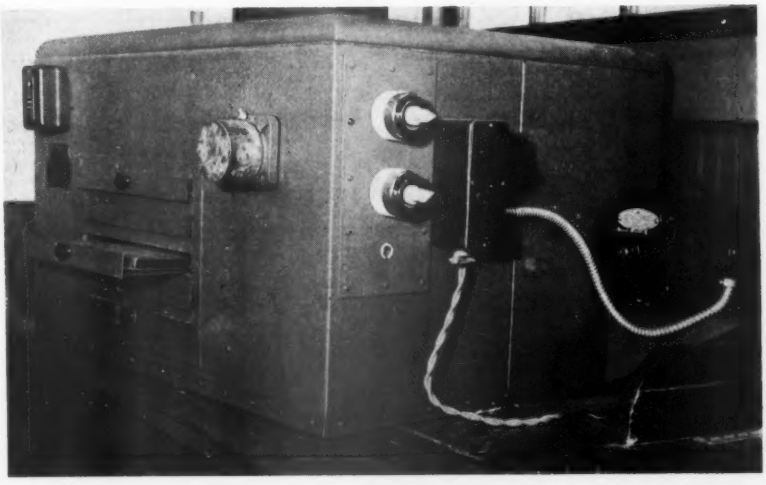
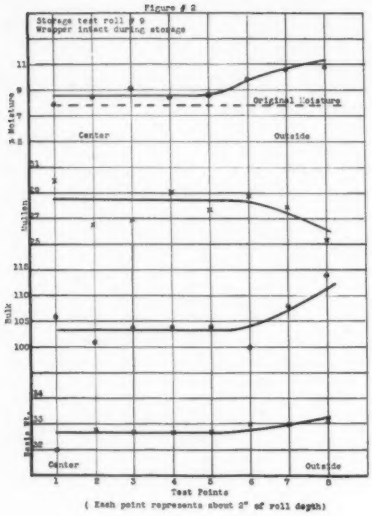
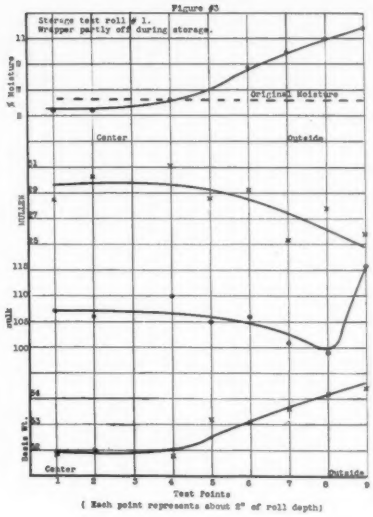


FIGURE I
An improved moisture testing oven for newsprint.

*Technical Supervisor, Washington Pulp & Paper Corporation, Division of Crown Zellerbach Corporation, Port Angeles, Washington.
Presented at the dinner meeting sponsored by the Pacific Section of TAPPI in Port Angeles, April 8, 1941.





this moisture change and to determine its extent, a number of rolls of paper were set aside for observation. Quality tests such as mullen, moisture, bulk, basis weight, etc., were performed at each end of each roll, and then they were wrapped with a standard packing and set aside. After a year's storage the rolls were opened and quality tests were made every two inches right down to the center of the roll.

The general conclusions were: All stored paper will tend to reach an equilibrium with the moisture in the surrounding air. In the case of the rolls tested, all of them gained in weight.

Moisture change is greatest in the outside few inches when the roll is well wrapped, and reduces to a minimum at the center (See Figure 2).

All other quality changes such as basis weight, mullen, bulk, etc., are due to the influence of the moisture changes (See Figure 2). However, if the roll is not well wrapped, the influence of the moisture change is more severe (See Figure 3). In this roll a section of the wrapper had been cut away and the bare paper left exposed. The moisture change penetrated 8 inches or so, while the other qualities were similarly influenced.

Another thought to be drawn from this study is that while the usual packing put on a roll of paper protects it to some extent, there are some rather pronounced changes that take place on the surface layer during storage, and perhaps a number of complaints from our customers are due to just this kind of situation.

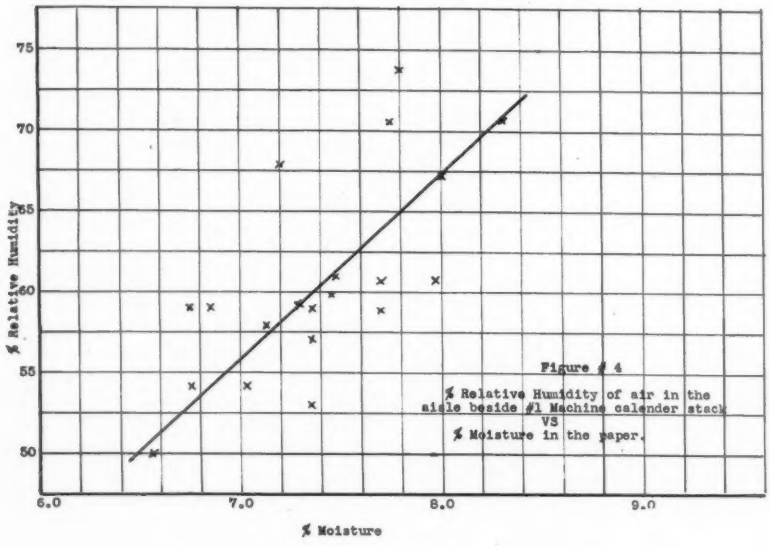


Figure # 4
% Relative Humidity of air in the aisle beside #1 Machine calender stack
VS
% Moisture in the paper.

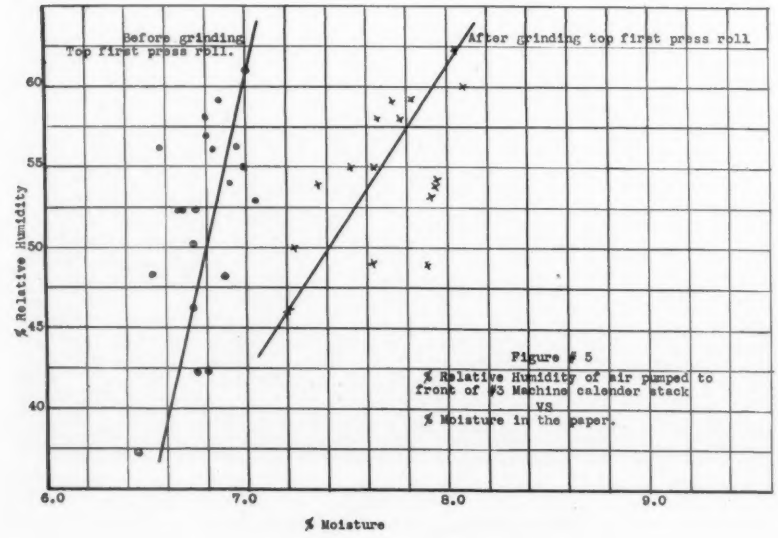


Figure # 5
% Relative Humidity of air pumped to front of #3 Machine calender stack
VS
% Moisture in the paper.

III

● From a logical standpoint we feel confident that changes in moisture content, or relative humidity of the air around a paper machine will affect the moisture in the sheet itself. The accompanying graphs show some of the results from an investigation along this line. It was shown that usually a change in relative humidity brought about some sort of change in paper moisture (See Figure 4). However, numerous operating variations on the machine itself tend to more than offset any changes brought about by humidity differences (See Figure 5). This figure shows clearly how an operating change can cause a wide variation in the paper moisture—relative humidity relationship.

In conducting this investigation,

relative humidity tests were made each day over a period of weeks in the air right adjacent to the dry end of the paper machine. For each humidity reading moisture tests were taken and averaged from ten reels of paper.

These results point out to us that no matter how closely we try to control our moisture on the machine, the outside factor of relative humidity cannot be disregarded if we desire more complete control.

Sidney Roofing Makes Offer for Water

● Another step in the controversy between the Sidney Roofing & Paper Company of Victoria, B. C., and the city of Victoria over a new water agreement was taken April 2nd when the company offered to raise the minimum price it would pay for water from $300 to $400 per month, or to pay a straight 2 cents per 1,000 gallons, whichever was more suitable to the city, providing the city would grant a 20-year contract. In addition the proposal called for a maximum supply of 50,000,000 gallons per month.

On the basis of the above terms the company would resume expansion of the existing plant and agree to keep it in Victoria.

The water board had favored continuance of the existing agreement until August, 1950, in so far as it covered the first 16,000,000 gallons used by the plant. All in excess of 16,000,000 gallons up to a maximum of 50,000,000 gallons a month would be sold by the city at a flat rate of 2 cents per 1,000 gallons. The minimum monthly payment by the company would be $600 and the company would be asked to contribute $5,000 to assist the city in meeting costs of repairs and improvements to the present water supply system.

The company's proposal was referred to the water board for a report. When the report is made to the board of aldermen it will be detemined what counter proposal, if any, is to be made by the city to the company.

John Stevens Makes Trip to Coast

● John Stevens, Jr., vice president and assistant general manager of the Marathon Paper Mills Company of Rothschild, Wisconsin, was a Pacific Coast visitor in April. Mrs. Stevens accompanied him.

Among the executives visited by Mr. Stevens was Robert S. Wertheimer, vice president and resident manager of the Longview Fibre Company, Longview, Washington.

Camas Orders Another Yankee Dryer

● The No. 9 paper machine at the Camas, Washington, mill of the Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, is to be equipped with a Beloit Iron Works Yankee dryer. Installation will probably be made sometime in September.

The dryer will be 12 feet in diameter and 137 inches in width. In May of 1940 a Yankee dryer was installed on the 176-inch No. 11 paper machine.

Blockade of Sweden Relaxed Slightly

● By consent of both British and German war authorities, reports the Bureau of Foreign & Domestic Commerce, U. S. Department of Commerce, a limited let-up in the Swedish shipping blockade has been obtained. In principle, the British authorities have agreed to allow five Swedish ships per month to pass through the blockade, one of which must come from a British port. This consent is conditioned first upon the fact that a corresponding number of ships of equal tonnage be allowed to leave westward, thus keeping the Swedish tonnage inside the blockade fairly constant. Although there has so far not been any formal assurance to this effect, the Germans are reported to be willing to grant corresponding privileges. In each case, an irrevocable condition is that no ship is to call en route at any belligerent port.

As to cargoes, there is no general permit, but each shipment must be covered with a special naval certificate. Thus some cargoes have had as many as 500 separate licenses involving an enormous amount of preliminary negotiations.

The Swedish ship Stegeholm is reported by the Swedish Foreign Office to have sailed on March 20th for New York, although, contrary to previous announcements, German permission for the exportation of wod pulp and paper was not granted. The ship was reported to carry 200 tons of razor-blade steel. The Gullmaren, of the Swedish Transatlantic Line is reported to have left Goteborg at the end of February and arrived at an American port March 15th, with eight passengers but virtually no cargo. The ship was expected to sail again for Sweden about March 25th.

The most recently reported arrival at Goteborg is the 4,000-ton motor freighter Vasaholm of the Swedish-American-Mexico Line, which arrived March 16th direct from New York, fully loaded with a mixed cargo. On March 4th, the 7,800-ton steamer Tynningoe, owned by the Rex Company of Stockholm, arrived from the United States with foodstuffs. It also carried about 2,000 delayed Christmas presents, containing chiefly coffee, dried fruits, and other articles such as soap, that are now either rationed or unobtainable in Sweden. These were distributed directly to addresses all over Sweden.

On February 25, the Swedish motorship Gilmmaren of the Swedish Transatlantic Line, loaded with 6,000 tons of important freight, chiefly cotton and tin plate, arrived directly from Galveston, Texas. Its sister ship Gullmaren, mentioned above, had previously arrived December 29 with a cargo of foodstuffs, being the first Swedish ship to pass through the double blockade.

Some Swedish cargo ships are reported to have been allowed to pass the blockade westward for South America, and a few passengers have been permitted to pass either way.

Press reports stated that one of the Swedish ships westbound arrived in New York bullet-scarred having suffered machine gunning from a German plane as it passed through the Skagerrak.

Several months will probably be necessary to determine just how far the British and the Germans intend to permit Swedish shipping in and out of the Baltic to develop. It is still impossible to learn whether or not wood pulp will in the future be included among those items permitted to be exported by Germany to the United States.

Another and unconfirmed report stated that seven ships a month were to be allowed each way, five to go to South American ports and two to the United States.

In view of the meager information available to date it is not considered likely that any consequential tonnage of pulp shipments to this country will develop.

Fernstrom Reports Profit for 1940

● The Fernstrom Paper Mills, Inc., Pomona, California, the share majority of which is owned by Fernstrom & Co., A.-B. of Stockholm, shows a net profit for 1940 of $83,239, after appropriations for depreciation and taxes on the year's trading. A dividend of 6 per cent will be paid to the shareholders. By the end of the year the company's renewal fund amounted to $560,242. The balance of profits carried forward to the 1941 account was $290,263.

The foregoing statement appeared in the February 28th issue of The Swedish Wood Pulp Journal, published in Stockholm.

Soundview Credit Union Has Grown Rapidly

● The Soundview Employees' Credit Union was organized in September, 1939, for the purpose of providing a safe and convenient means for the employees of the Soundview Pulp Company of Everett, Washington, to save systematically and to utilize the savings in supplying credit to the members of the union. Thus the savings of members are put to work performing a useful service and at the same time bringing in a return on the investment.

The credit union furnishes a source of credit not otherwise available to the majority of employees and payroll deductions offer an easy method of saving money and repaying loans. By "grouping" his obligations in a credit union loan, the borrower quite frequently eliminates a source of considerable worry. Credit union loans are personalized loans, made to members who are known to those who are responsible for making them. They are tailored to fit the needs and ability to pay of the borrowing member by the credit committee which the member has helped to elect from among his fellow workmen.

The credit union makes loans which regular banks could not make economically. Under credit union laws, the purpose must be either productive or providential. These terms are subject to broad interpretation. Looking at the actual records a majority of loans are found to have been made to save members excessive interest charges on purchase contracts, and to enable them to obtain discounts on bills.

Another important purpose is to relieve members from "loan sharks" or other pressure loans. Still another purpose is to provide emergency health service. In short, the credit union stands as a source of funds provided by members which can be drawn upon in emergency and when they are willing to mortgage part of their future earnings and savings to acquire things that will add to their comfort and enjoyment of life.

Subject to federal or state law and supervision, which includes the inspection of audits of accounts, the members of the credit union either decide operating policies themselves at annual or special meetings or authorize their officers to do so.

From a modest beginning the Soundview credit union has grown rapidly, particularly in recent months. It started with a membership of 7 and has grown to 325 members. The first loan was made January 4, 1940, in the amount of $35.00. At the close of 1940 the Soundview credit union had assets of $10,917.00 and, at the end of March, 1941, the assets were $18,726.42.

A 5 per cent dividend was declared upon the basis of the successful 1940 operations and credited to the share account. At the same time a substantial amount was set aside as undivided earnings. One of the major factors contributing to the growth of the credit union at Soundview has been the payroll deductions, made possible through the courtesy of the management of the Soundview Pulp Company.

The present officers of the Soundview Employees' Credit Union are: G. J. O'Brien, president; Vic Maahs, vice president; John M. Carlson, secretary-treasurer; Gordon Irvine, Sr., chairman of the credit committee with Al Parks and Cliff Ronken as committeemen; Rolfe Lundgren,

THESE MEN PASS ON THE LOANS ... Officers and committee members of the SOUNDVIEW EMPLOYEES' CREDIT UNION ... Back row, standing, ROLFE LUNDGREN, Chairman of the Supervisory Committee; HAROLD RATLIFF, Clerk ... Middle row, standing, left to right, ROBERT MINNEHAN, member of the Supervisory Committee; VIC MAAHS, Vice President; JOHN M. CARLSON, Secretary-Treasurer; and CHARLES LAWRENCE, member of the Supervisory Committee ... Front row, seated, left to right, CARL RAMSTAD, member of the Supervisory Committee; G. J. O'BRIEN, President; and, GORDON IRVINE, Sr., Chairman of the Credit Committee.

chairman of the supervisory committee with Carl Ramstad, Charles Lawrence, Robert Minnehan and Abe Wilson as committeemen, and Harold Ratliff as clerk.

The good judgment of the officers and committee members is evidenced by the fact that no bad loans have had to be written off to date.

Growth of the SOUNDVIEW EMPLOYEES' CREDIT UNION

Total Assets by Months

September 30, 1939	$ 5.00
October 31, 1939	27.50
November 30, 1939	31.50
December 31, 1939	72.99
January 31, 1940	87.99
February 29, 1940	117.59
March 31, 1940	519.92
April 30, 1940	2,072.32
May 31, 1940	2,426.80
June 30, 1940	3,446.29
July 31, 1940	4,605.00
August 31, 1940	5,644.87
September 30, 1940	6,792.49
October 31, 1940	8,064.41
November 30, 1940	9,444.79
December 31, 1940	10,917.03
January 31, 1941	12,406.91
February 28, 1941	14,058.90
March 31, 1941	18,726.42

Knudson Leads Purchasing Agents' Discussion

● At the April meeting of the Purchasing Agents' Association of Washington at the Washington Athletic Club in Seattle, April 10th, Kenneth Knudson, purchasing agent for the Everett Pulp & Paper Company, led a discussion on "Commodity Price Trends and Priorities."

Frank Frothingham Calls on Coast Mills

● Frank F. Frothingham, western manager of the Bird Machine Company of South Walpole, Mass., with offices in Chicago, was on the Pacific Coast the first half of April visiting pulp and paper mills in the interests of the Bird Machine Company's equipment.

Mr. Frothingham drove to Los Angeles and then fought his way north through the flooded roads to Portland and Seattle. On the return trip to Chicago he took the middle route through southern Idaho and Wyoming. Mr. Frothingham drives to the Coast twice a year.

Russell McCandless A Coast Visitor

● Russell McCandless of New York City, rayon pulp broker, was a Pacific Coast visitor in April.

Anderson Says Shortage Possible in Unbleached

● Possibility of a wood pulp shortage in 1941, particularly of unbleached sulphite and unbleached kraft, resulting from loss of imports from Scandinavia coincident with a rising trend in consumption, and the probability that lower prices may not immediately follow the end of war in Europe, was foreseen by Ossian Anderson, president, Puget Sound Pulp & Timber Co., in a statement answering inquiries arising from the Company's annual report for 1940.

In normal years, said Mr. Anderson, pulp-consuming countries import nearly 6,000,000 tons of pulp, of which over 5,000,000 tons are supplied by Sweden, Finland and Norway. The import balance of the United States, Great Britain, Japan and Latin American countries was 4,900,000 tons in the last prewar year for which figures are available. Scandinavian supplies to Great Britain, the Western Hemisphere and the Orient were almost entirely shut off in the last seven months of 1940. With the exception of a small trickle from Finland, continental European markets are the only ones now being supplied by Scandinavia, under German barter methods, absorbing about 50 per cent of normal Scandinavian output.

Canada succeeded in increasing its exports in 1940 to 1,068,000 tons from 706,000 tons in 1939; United States exports rose to 480,000 tons from 140,000. These increases, however, made up only about one-seventh of the loss of Scandinavian supplies.

United States consumption, which closely follows the index of industrial acitvity, established an all-time high at 9,751,000 tons of new pulp in 1940 compared with 8,880,000 tons in 1939. Domestic production of 9,007,000 tons, also a record, compared with 6,993,000 tons in 1939. Simultaneously our imports dropped 801,000 tons and our exports were 340,000 tons higher, 1940 compared with 1939.

Most of the increase in United States production was in self-contained mills and consumed by themselves in the manufacture of paper and board. Converting mills which depend upon pulp manufacturers for their supplies were forced to draw on inventories; stocks on hand were reduced from 342,000 tons in March, 1940, to 202,000 tons in December.

American supply of unbleached sulphite and unbleached kraft is likely to be affected before other grades, according to Mr. Anderson. All grades combined, United States rated capacity about equals domestic consumption, but in unbleached sulphite pulp even capacity production, which has never been achieved, would fall 220,000 tons short of estimated consumption in 1941. In 1940, unbleached sulphite total consumption exceeded domestic production available to the home market by 373,000 tons, of which 158,000 tons came from the now discontinued Scandinavian source.

Even with the return of peace it will be necessary to replace lost shipping tonnage and scour the Atlantic free from mines before resumption of normal shipping volume from Scandinavia at normal freight and insurance rates, which are now six or seven times the prewar level.

LOUIS BLOCH, Chairman of the Board, Crown Zellerbach Corp., giving a hearty handshake of congratulations to JACK BATZER, Third Year Student . . . Dean A. G. NATWICK of the Paper School at the microphone.

Camas Paper School Holds Eighth Graduation

Since October 5, 1933 when the first course of the Crown Willamette Paper School at Camas Began, 583 students have completed the First Year Course; 315 the Second Year Course; 175 the Third Year Course; and, 105 the Fourth Year Course.

NEARLY 300 employees of Crown Willamette Paper Company, Division of the Crown Zellerbach Corporation received diplomas at the graduation banquets held March 11th and 12th at the Crown Willamette Inn in Camas, Washington. This was the eighth annual graduation of the Crown Willamette Paper School, an institution which pioneered voluntary employee education in the pulp and paper industry.

Highest honors given by the school, to the two top honor students in the fourth-year class, were presented to Rufus B. Tobey and Milton Franklin of Camas, in the form of one week's tour of Crown Zellerbach's Pacific Northwest mills with all expenses paid. Honorable mentions in the fourth year were Edwin Roake, of West Linn, and Thurston Yocum and Jack Miller of Camas.

Third-year honor students were James M. Burch, who received copies of The Manufacture of Pulp and Paper, and Lear Smith of Camas. Honorable mention went to Fred Heinl, West Linn; Burr Canfield, Camas; and B. Pope of West Linn.

Second-year honor students are Carl Gehman and John Grill of Camas, and M. M. Graham, West Linn; Honorable mentions, John Plankington, Seymour Howard, James Darby and R. A. Wilkinson, all of Camas. Honor Students of the first-year class include Ed Evans, Joe Tescher, and Lynn Robertson of Camas; Honorable mention went to George La Husen of West Linn; Carroll Eckert, Camas; Don Tenny, of the Portland office, and Bert Knutson, Camas.

● A. G. Natwick, dean of the paper school and assistant resident manager of the Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, at Camas, presided as toastmaster at both graduation dinners. He commended the student body, saying, "you are men and women who have worked of your own free time over most of the past year. You have shown ambition . . . to improve yourselves and the industry. You are proving to be the backbone of the industry . . .". Mr. Natwick related that industrial schools are taking form in other industries besides the pulp and paper manufacturing and said the trend may be toward this type of vocational education.

"Building Customer Good-Will with Uniform Quality Products" was the subject brought to the first and second-year graduates by F. N. Youngman, vice-president of Crown Zellerbach Corporation. He told of the meetings held annually in Portland and Ocean Falls, B. C., jointly attended by men of the technical and manufacturing departments to determine just what can be done to correct any defects in the company's products.

An example of the results derived from these sessions is fruit wraps. A few years ago, according to Mr. Youngman, this was just another tissue paper to the manufacturers. Complaints came in on the products, and men from the paper mills made trips into the orchards and packing houses to study the problem. As a result the methods of manufacturing fruit wraps have steadily improved and last year, in spite of the large sales there wasn't a complaint from a single packing house.

Mr. Youngman said, "Sales are kept up because of uniform quality," and that quality will not be forsaken for lower cost.

● Resident Manager J. E. Hanny, of the Crown Willamette Paper Company, Division of Crown Zellerbach Corporation at Camas, who founded the Crown Willamette Paper School in 1933, said he had no idea at that time that the school would develop as it has. Since October 5, 1933, the Paper School has graduated 583 from the first-year classes, 315 from the second-year classes, 175 from the third-year classes and 105 from the fourth year classes. This year the school had a "larger enrollment, better attendance and better grades," according to Mr. Hanny. The result was to make the students more valuable to themselves and to the company. In concluding, Mr. Hanny extended his congratulations, upon their successful completion of the 1940-41 term.

Dr. Frederick M. Hunter, chancellor of Oregon's state system of higher education was introduced by Alexander R. Heron, director of industrial relations, Crown Zellerbach Corporation. Dr. Hunter brought greetings of the Oregon system of higher education, commending the Camas school and expressed hopes of a closer relationship between the two school systems.

Dr. Weldon M. Wilson of the White Temple Baptist Church, Portland, spoke

on how to make the most of our assets. The title of his address was "Sunny Side Out," carrying the idea that a pleasing, happy personality wins above all else; there is no better aid to selling an article than the attractive, likeable personality. It is not the work or the problems, according to Dr. Wilson, that determine whether the disposition is sweet or sour, but it is the will power.

Before presenting the first and second-year students with the diplomas, Albert Bankus, vice-president of Crown Zellerbach Corporation, mentioned the scope of the school's work. It is receiving attention in the whole of the paper industry. Recognition is being accorded to J. E. Hanny, who founded the school, and to Dean Natwick and the faculty.

According to Mr. Bankus the school is made possible by the willingness of the foremen, superintendents and executives of Crown Zellerbach and of men from other companies to give their time outside working hours to instructing the students. Here in the Crown Willamette Paper School the theoretical is fused with the practical; a practical education which was not available to the men on the faculty.

Before the diplomas were awarded a telegram from E. A. Olmsted, principal, was received from Albany, New York, and read by Dean Natwick. Mr. Olmsted sent regrets that he couldn't be present and remembered the women graduates by sending a red rose to each.

Dr. Hunter, Dr. Wilson and F. N. Youngman were each presented with a large box of paper products manufactured at the Camas mill as a token of appreciation.

Mr. Bankus, assisted by Dean Natwick, presented diplomas to the 138 members of the first-year class and the 67 second-year students.

First-Year Graduates

• Clifford Arnold, Rudolph Anderson, George Agun, George Ayers, Norbert Boyle, Elmer Beauchamp, Ed Bartikowski, William Brock, Hubert Bolger, E. F. Baker, Earl W. Baker, Wayne G. Bayless, Wayne Bea, John H. Beaver, Jr., Harold Berg.

James Blair, Delbert Bush, John Burnett, Harvey Bradley, Willis Britton, Robert Butler, Robert Black, Fred Bryan, H. E. Burnett, Tom Bennett, Leonard Conway, George A. Charters, Dougal Callison, Portland, James F. Cregan, Herbert Cahn, Donald Capps, Herbert E. Cash, Charles Clemons.

C. E. Dickie, Portland, W. E. Davenport, West Linn, Alvin Doyle, Averill Dunford, Richard Drewfs, Frank L. De Temple, Fred Ellegsen, West Linn, Laurence Ethier, Edward Evans, Arthur Eymer, Lloyd Eiford, Carroll Eckert, T. F. Finlayson, W. Dale Frymire, Leo Guffnett.

George Gasaway, Merle Gould, Eugene Hagen, Oscar Hamilton, Oscar Hannan, Mathew Haslett, Patrick Heade, West Linn, Clarence Heriford, Paul Herman, R. Hetherington, Donald Huycke, Bernard J. Jacoby, George Johnson, Ralph Jacobsen, Irene Junge, Donald Kontz, Bert Knutson, Oscar Klee, Bryan Kibbey, Vincent Lommen, Laurence Lehr.

George La Husen, West Linn, Harry Larsen, Ronald Lambert, Frank Maney, Portland, Ernest Malcolm, Leon Malfait, Richard Mark, Paul McDonald, John Neagher, Joe Myer, Ellis Newkirk, Orville Osgood, Louis Ostenson, Edgar Ostenson, Clarence Ostenson, Joe Otterson, West Linn.

FIRST and SECOND YEAR HONOR STUDENTS being congratulated by ALBERT BANKUS, Vice President Crown Zellerbach Corp. (left), and Dr. FREDERICK HUNTER, Chancellor, Oregon System of Higher Education (second from left).

First Year Honor Students, left to right, ED EVANS, JOE TESCHER and LYNN ROBERTSON / / / Second Year Honor Students, left to right following the first year, CARL GEHMAN, JOHN GRILL and M. M. GRAHAM of West Linn Division.

Virgin Ochs, Richard Owenson, Mittford Persyn, West Linn, Frank Piller, Price Pickett, Jerry Plue, George Purrier, Jr., Alfred Paris, Jack Randal, Joe Russell, David H. Rickard, Lewis Richardson, I. J. Rivenes, Harold Robertson, Jim Rook, Eugene Rhodes.

Donald Ream, West Linn, Lynn Robertson, Albert Romine, Roy Russell, William Ross, Bernt Reese, Arnold Stuhr, John Schick, James W. Scott, Perry C. Scott, Nick Smith, Portland, Elizabeth Smith, Portland, Walter Smith, Verner Smith, Geraldine Stephans, Roy Spalding.

Charles Shirley, Frank Schmitz, Howard Surbeck, Gene Shauvin, Lester Schatz, Philip J. Shcile, Carl Sherrell, Florence Schaefer, Willis E. Schmitt, William Thomas, Joe Tescher, Walter Tubby, Portland, Donald Tenney, Portland, Roy Trutton, Alex J. Urquhart, Fred Weakley, Dorothy G. Wilber, Portland, Roger Williams, John Walkky, George D. Weaver, J. Waitkowiz, West Linn, Lloyd Weible.

Second-Year Graduates

• Everett Arnold, Robert Anderskow, N. J. Aslin, G. E. Best, Charles E. Boucier, R. A. Butler, W. S. Boutwell, West Linn, Miles Cady, Dave H. Christopher, Vernon Cox, Harland R. Clodfelter, West Linn.

The CROWN WILLAMETTE PAPER SCHOOL is COEDUCATIONAL / / / Dean of the Paper School, A. G. "Buff" Natwick, left, and J. E. "Jack" HANNY, Resident Manager, right, pose with the girls who were awarded certificates.

The ladies standing are: FLORENCE SCHAEFER, DOROTHY G. WILBER, Portland; ELIZABETH SMITH, Portland / / / Seated, left to right, Mrs. PHYLLIS PATTERSON, who received a second year certificate; IRENE JUNGE, GERALDINE STEPHAN and Mrs. AVERILL DUNFORD.

RUDOLPH ANDERSON, first year student receiving his certificate from ALBERT BANKUS, Vice President Crown Zellerbach Corp. / / / Dean of the Paper School and Assistant Resident Manager at Camas, A. G. Natwick, standing behind Mr. Bankus.

Lewis A. Coleman, Woodrow Daly James Darby, Clinton Dobson, John English Robert J. Fuller, Carl Gehman, M. M. Graham, West Linn, W. C. Gigler, Wm. P. Godsil, Jr., John Grill, Dale F. Hamilton, Francis Holmes, E. E. Hoffman, Demas D. Hutchison.

R. W. Hersikorn, W. Seymour Howard, Henry Jacobson, R. W. Johnson, Ivan Johnson, Wm. G. Keist, Donald Knapp, Roy Keller, John A. Liedtke, Paul Laudien, West Linn, Robert L. Miller, John Martinson, Portland, Hugh A. Mason, Charles L. Nordstrom, Elbert Newkirk, E. A. Paul, Phyllis Patterson, George Patterson.

R. O. Parsons, Talbert B. Preuit, John Plankington, O. W. Robertson, E. Robertson, John Repman, John Roberts, W. J. Ross, L. F. Russell, West Linn, Bert E. Sullivan, Frank D. Sill.

Guy Stotz, Wm. Scott, Emil Schroeder, W. L. Stayton, Alan F. Tucker, Lloyd M. Weible, Charles H. Witt, Jr., R. A. Wilkinson, John Winter, M. C. Wickstrom, West Linn, Herbert Westby, Jack A. Ziegler.

Third and Fourth-Year Banquet

● Third and fourth-year graduates heard an address by Alexander R. Heron, director of industrial relations, Crown Zellerbach Corporation, titled "Beyond the City Limits of Camas." In this talk he mentioned the difference between the paper school of Camas and most other schools. This paper school does not offer liberal schooling as generally known, nor a strictly vocational education. There are few things in the course, said Mr. Heron, pertaining directly to the student's present job. The work gives a view of other jobs. The results of this schooling tends toward a better orientation; an understanding of the interrelation of one's own work with the outside world.

Camas is related to the outside world in interesting ways, Heron said. Some 3,000,000 people read the daily newspapers which are printed on newsprint made at the Camas mill. Stockholders numbering more than 20,000 and living in widely separated communities are interested in production every day, for they use Camas as a place to put their savings to work. When the wheels stop, the savings lose their safety and the rent on the investment stops, making, Mr. Heron said, the stockholders active, though absent, citizens of Camas.

The sales organization has an intense interest in Camas, as, according to Mr. Heron, this organization is "selling the services of the men in the Camas mill; selling these services all over the world." He concluded by placing the limits of Camas as being "half way around the world," because of its interdependence upon millions of people.

J. E. Hanny, resident manager, commended the employees for their interest in and attendance at the paper school, saying he feels certain that the students will receive ample returns for these efforts.

FRANK N. YOUNGMAN, Vice President, Crown Zellerbach Corporation, Portland, speaking to the first and second year classes on "Building Customer Good Will with Uniform Quality Products."

Seated, left to right, Dr. WELDON M. WILSON, pastor of the White Temple Baptist Church, Portland; A. G. NATWICK, Dean of the Paper School; and J. E. HANNY, Resident Manager at Camas.

Professor Grondal Speaks

● Professor Bror L. Grondal, College of Forestry, University of Washington, pointed out the advantages of the schooling opportunities available to the employees of Crown Zellerbach organization; mentioning that only a relatively few years ago the instructors would have been criticized for delivering lectures on the pulp and paper industry.

The Crown Willamette Paper School, said Professor Grondal, is a pioneer in industrial schooling; it is the "only school of its kind where students can matriculate in a course without special recognition by the management."

Men in industry are coming to the realization that industry is based solely on education, Professor Grondal continued. We must know how to do the things of industry, although at the same time industry is becoming more and more complex. So involved have become the manufacturing processes that there is no longer the danger of any man knowing too much about any one industry.

Concluding his talk Professor Grondal paid tribute to those responsible, "for making the great advance of industry in building up this school. It is so far ahead that the industrial and educational world is closely watching the immediate results."

The paper school curriculum includes 16 weekly sessions a year in each of the four courses offered. Work done by the students is of such calibre that it has been recognized by the College of Forestry, University of Washington, and academic credit can be obtained by the paper school students who may enroll in the college.

Mr. Bloch Commends School

● Louis Bloch, chairman of the board of Crown Zellerbach Corporation, com-

mended work of the Crown Willamette Paper School, the city of Camas, Resident Manager J. E. Hanny, Dean Natwick and the other men of the school faculty. Before presenting the diplomas to the third-year students and diplomas and a copy of the school's text book to fourth-year graduates, Mr. Bloch said, "there can be no excess of gratitude toward this school for the benefits it gives to those completing its courses."

In addition to the speakers already mentioned, the following men were seated at the head table and were introduced, as were the faculty members of the paper school:

R. O. Young, assistant vice-president, Crown Zellerbach Corporation; C. L. Dilling, manager of Western Wax Paper Company, Portland; George Charters, assistant resident manager, Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, Camas; A. Hammond of the Western Wax Paper Company; Oakley Dexter, purchasing agent, Crown Zellerbach Corp., San Francisco; Clarence Bruner, resident manager, Crown Willamette Paper Company, West Linn; Malcolm Otis, assistant manager, Crown Willamette Paper Company, West Linn; Members of the paper school faculty are Clarence Enghouse, vice principal; W. E. Harms, registrar; G. H. Gallaway, George Bailey, Reginald Haight, O. T. Defieux, F. W. Flynn, Frederick Sievers, Gus Ostenson, Paul Millard, Herman Junge, Roy Miller, and C. A. Anderson.

W. N. Kelly, manager, Longview Mill, Pulp Division Weyerhaeuser Timber Company, and R. S. Hatch, research director, Weyerhaeuser Timber Company, were guests, as were Otto Hartwig of Crown Zellerbach Corporation, Portland office; Pierre Hines of Stephens- Adamson Manufacturing Company; Harry Richmond. Electric Steel Foundry Company, and others who had contributed their time to the school as guest instructors.

Special guests included members of the Camas Commercial Club, W. Swank, president; Camas-Waushougal Kiwanis Club members, Jack Robertson, president, and also safety director of the Crown Willamette Paper Company at Camas; the Camas Lions Club, O. M. Huycke, president; Mayor H. J. Woodworth of Camas; Clyde Johnson, president of Local 130, International Brotherhood of Paper Makers; and, B. J. Pillette, president of Local 100, International Brotherhood of Pulp, Sulphite and Paper Mill Workers.

Of the following men and women receiving diplomas seventeen of the first and second year classes were from the West Linn Division; one from the Western Transportation Company Division; one from the Zellerbach Paper Company Division; and, four from the Portland office of the Crown Willamette Paper Company Division of Crown Zellerbach Corporation.

Of the third and fourth year classes fourteen were from the West Linn Division. Those attending the school from divisions other than Camas are indicated.

Third-Year Gradutes

• Harlan Adair, Jack Batzer, Fred J. Burnell, West Linn, J. A. Butterick, Jr., Kenneth Branstiter, Roy Brown, Fred Blomenkamp, J. Burch, C. M. Beck, Burr Canfield, E. A. Clark, West Linn, E. W. Crisman, C. M. Cline, Leslie Golladay, Carl Genz.

ALEXANDER R. HERON, Director of Industrial Relations, Crown Zellerbach Corporation, congratulating the Honor Students of the Third and Fourth Year Classes. Shaking hands with Mr. Heron is JAMES BURCH, Third Year Honor Student . . . Next to him is LEAR SMITH, also Third Year Honor Student . . . Third man is RUFUS B. TOBEY and fourth is MILTON FRANKLIN, both Fourth Year Honor Students.

L. F. Heinl, West Linn, E. L. Howard, West Linn, J. A. Hughes, T. Michael Hughes, J. W. Holmes, Ragnar Josephson, Gordon Junge, David R. Kline, West Linn, Gordon C. Kinney, William Little, West Linn, O. Lystell, West Linn, R. E. Lawton, A. J. Lethlean.

Arthur R. Lindsley, West Linn, M. C. Lewis, John LeTourneaux, Paul Middlebrook, George Nelson, Clifford Parr, B. Pope, West Linn, R. K. Pratt, West Linn, Donald E. Persons, Louis Pierson, S. M. Purdy, John Pollard, Glenn W. Quail, K. Renner, West Linn.

W. Roppel, West Linn, Harold L. Roley, Lear L. Smith, E. D. Simpson, Fred Schick, H. B. Scobba, C. Sawyer, Ralph Strickler, H. F. Thornton, L. S. Thompson, F. W. Tietz, Don G. Wilson, C. V. Ward, Herbert Wymore.

Fourth-Year Graduates

• E. C. Aslin, Adolph Ast, Richard L. Baldwin, Roderick M. Crosby, Gerald Carpenter, R. D. Day, Wm. Daly, T. E. Dear, A. I. Evanger, Wm. Fritz, Milton Franklin, Wm. L. Failing, F. H. Hammond, Wm. W. Hart, D. E. Hallock, Lloyd A. Hutchinson.

Joyce Kendall, West Linn, Jack Miller, M. A. Newkirk, W. J. Perrault, R. L. Prentice, Harold Quick, George Rundquist, Wm. D. Shadel, Curtis E. Sawyer, Ralph Sievers, Chauncey L. Storms, Harold Stenehjem, Rufus Blair Tobey, Roy L. Wohlsein, Thurston Yocum, Edwin Roake, West Linn.

Paper School Faculty

• A. G. Natwick, dean, F. A. Olmsted, principal, Clarence Enghouse, vice principal, W. E. Harms registrar, G. H. Gallaway, George Bailey, Reginald Haight, O. T. Defieux, F. W. Flynn, Frederick Sievers, Gus Ostenson, Paul Millard, Herman Junge, Roy Miller, C. A. Anderson, instructors.

TOASTMASTER A. G. NATWICK, Dean of the Crown Willamette Paper School, presiding at the Third and Fourth Year Banquet, March 12th. Seated, left to right, A. R. HERON, Director of Industrial Relations, Crown Zellerbach Corp.; Professor BROR L. GRONDAL, College of Forestry, University of Washington, Seattle, who spoke; LOUIS BLOCH, Chairman of the Board, Crown Zellerbach Corp., who presented the diplomas; and J. E. HANNY, Resident Manager at Camas.

The Road to Petsamo

by FOLKE SUNDBLAD

DID anybody ever hear of Petsamo? Indeed, in the United States and many other countries west of the present war's Atlantic blockade barrier pulp and paper people have during the last few months come to gaze at it increasingly, wondering if the movement of pulp and paper, particularly from the Scandinavian countries, will be able to force itself through that narrow outlet, now their only one to the world beyond that line, and in such quantities as to alleviate existing shortages. Also, some 800 to 900 American citizens from various parts of Europe have found their way recently to their homes in the United States via Petsamo, assisted by the American authorities, and, no doubt, they will never forget that trip. Last but not least, there are the Finns and the Swedes. To the former Petsamo belongs after hundreds of years of combats with various other nations and it is today of tremendous importance to Finland in its hard and straight fight toward consolidation and recovery after the recent offensive war on the part of Russia; and to Sweden, Petsamo is a helping hand on the part of Finland, gallantly held out in allowing its good neighbor the greatest possible use of that channel to the outside world although Finland itself needs it badly.

Besides, Petsamo, its surroundings and the territory to the south is ground drenched in blood of Finn and Russian recovered finally after a short but ferocious war by the Finns for their continued freedom and a sovereign Soumi, Finland. All the world was amazed at the feats of the Finnish army and the Finnish people during that recent war!

It is my privilege to do my part, in bringing the big cellulose drying machine by this ship, M/S "Mathilda Thorden," from the six factories in Sweden, where it was manufactured and where my principals, Puget Sound Pulp & Timber Company, decided to order it in as much as it is especially suitable for their production of pulp, to New York for transshipment via the Panama Canal to Bellingham, Wash., I had an exceptional opportunity to acquaint myself with the Petsamo road, its drawbacks and its possibilities. That transportation problem, including serious shortage of gasoline, oil and tires in Scandinavia, required about 70 motor trucks to carry the machine dismantled over the last part of the road to the ship; the machine was originally transported over the Swedish railroads in 23 railroad cars from said factories in Sweden railhead at Haparanda on the Swedish-to the Swedish railroad at Haparanda on the Swedish-Finnish frontier for transshipment by motor truck 450 English miles to Liinahamari, as well as to the same Swedish railhead at Haparanda and transshipped there to broader gauged Finnish railroad cars for railing to the Finnish railhead at Rovaniemi for transshipment by motor truck about 330 English miles to Liinahamari, the longest stretch all in all being about 1,500 English miles from the most distant Swedish factory to the loading place of the ship at Liinahamari, near Petsamo, on the Arctic Ocean.

Folke Sunblad, an American citizen of Swedish ancestry, has been European representative for the Puget Sound Pulp & Timber Company for a number of years. When war was declared he was in Paris, but shortly thereafter he went to Sweden and remained there until the Fall of 1940 when he returned to his home in New York City by way of Petsamo, Finland.

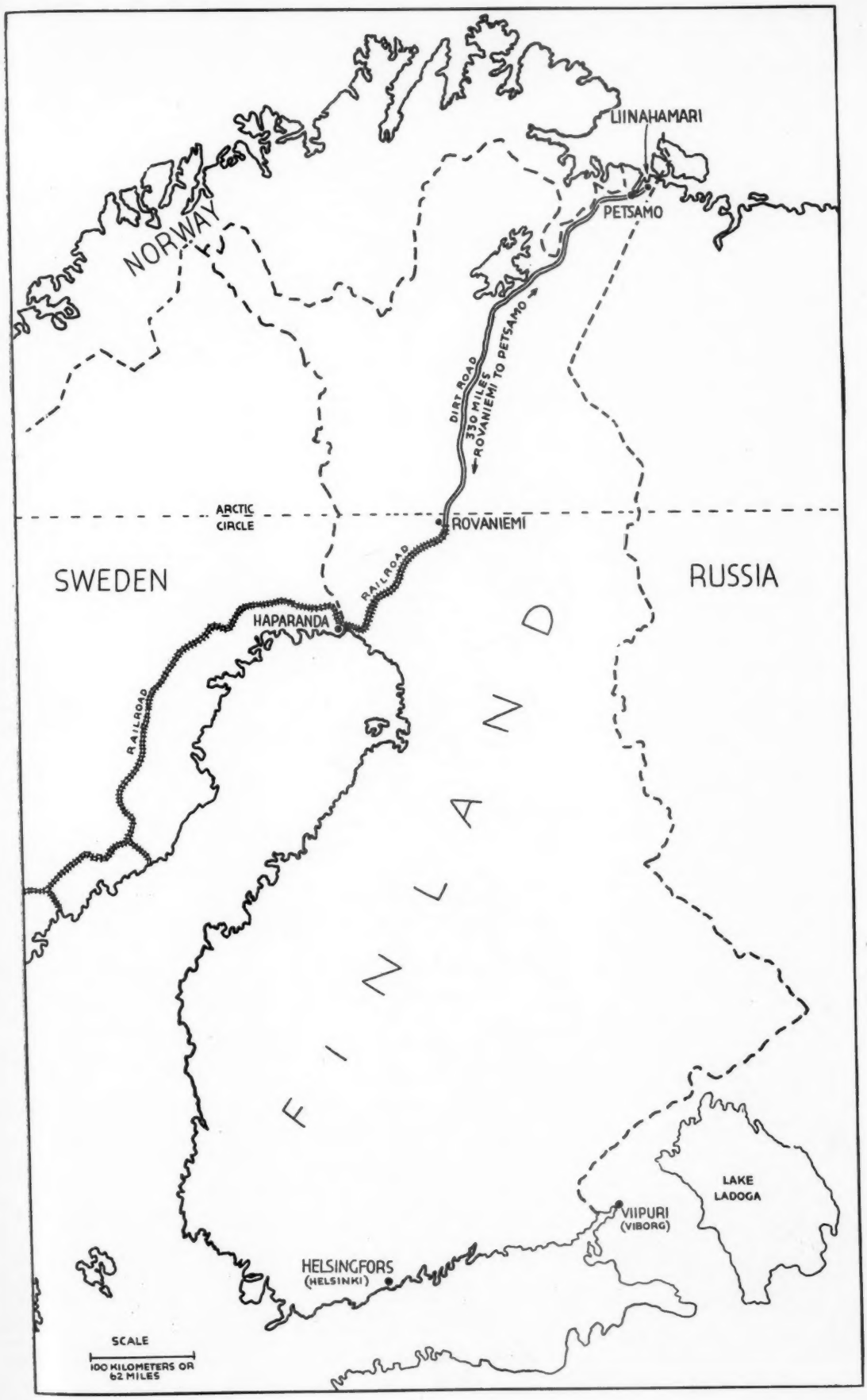
Mr. Sunblad's report of his trip was written on board the Finnish motorship "Mathilda Thorden" early in November, 1940. Because of its interest to the American pulp and paper industry, Mr. Ossian Anderson, President of the Puget Sound Pulp & Timber Company, kindly granted our request to publish it.—Editor.

As far as the minimum movement by motor truck is concerned, we can thus say that the 330 English miles of road to Petsamo starts at the Finnish railhead of Rovaniemi and finishes at Petsamo, with its loading places of Liinahamari, Trifona and Parkkina. Naturally, to the Finnish export factories and main import consuming centers to the south in the opposite direction there is a long and costly stretch by rail from Rovaniemi; to corresponding Swedish points there is an even longer and much more costly distance to be covered by rail. It is to be noted that the Swedish Petsamo movement as far as motor truck is concerned will from now on have Rovaniemi in Finland as its starting point for the following two reasons: Finland wants maximum of revenue for its railroad on the Haparanda-Rovaniemi run and Sweden pays the cost of transshipment at Haparanda from Swedish railroad cars to Finnish railroad cars (owing to the different gauge), plus the cost for that Finnish rail transportation, rather than consuming gasoline, oil and tires, of which there is a very serious shortage, on that distance.

Against that background and as soon as all the 519 items of boxed-up and otherwise packed machinery had been brought across the frontier from Sweden to Finland, I found myself in Rovaniemi at its hotel Pohjanhovi, where one reads the motto: "Here 'tis good for thee to soiourn, and to pass thy days in comfort, salmon you can eat at table and beside it pork is standing." A good hotel, erected and operated by the Finnish authorities, and well managed. Holes of Russian bombs in all directions in the village with splinter holes in the hotel walls, demolished houses, hundreds of windows still patched up with lumber and paper board in numerous houses, etc., are in evidence. But there the hotel stands, a proud outpost, practically on the Arctic Circle, having served as hospital and as headquarters for the Swedish volunteer troops during the recent war and now it serves as headquarters for all those, Finns and Swedes, who operate this strange movement on the Petsamo road. As in northern Sweden and many frontier points of that country, this is now military reservation under strict Finnish military laws that require special military permits, controlled four times on the distance from the Swedish-Finnish frontier to Petsamo, for anyone who enters this part of Finland. Numerous officers and soldiers along with get-rich-quick motor truck line owners, chauffeurs and busy officials lend severity as well as color to the picture.

Here I shall put in a word in regard to the Swedish part of this traffic and its organization, with the Finnish permit for Sweden to use this channel for a small part of its export and import. There is an agreement between the two countries whereby Sweden is supposed to be allowed to share the road, the loading places and the ship space to the extent of about 15 per cent for exports, which naturally refers chiefly to heavy and expensive goods, such as machinery, ball bearings, steel, etc., but practically no pulp and paper, and 25 per cent for imports, the percentage, however, depending on many factors, such as actual revenue in free currencies, available ship space, time of transportation, etc. It is indeed a Godsend for Sweden to enjoy department, Crown Willamette Paper starved and sick. I mentin this, because that much contact with the world beyond the Atlantic blockade barrier in regard to commercial intercourse, and she is making the most of it.

That means, to start with, that Swedish authorities only grant permission for goods to move out and in that way that they consider will bring the maximum of free foreign currency and which may further the national trade interests as well as those most needed from those parts of the world for home consumption, respectively. Sweden, therefore, has formed a government owned company, AB. Transitotrafik, with Finnish headquarters at Rovaniemi, and the functions of the same are mainly: (1) to be the immediate contact with the Finnish corresponding authorities, to control all Swedish goods going through to or from Petsamo, to handle the motor truck movement between Rovaniemi and Petsamo, etc.; (2) to control the various forwarding agents used by the shippers at both ends; (3) to control the building of barracks at both ends and along the road for the Swedish drivers, to control their supply of food, gasoline, oil, tires and other necessities, to control Swedish service stations that are being built along the road, their mechanics, necessities, etc., to control the Swedish end of the situation at the loading places of the port, the building and upkeep of gasoline tanks, and so on. In other words, if one wishes to find out about anything or to make claims, one should contact said Transitotraffic at Rovaniemi and its man-


LIINAHAMARI
PETSAMO
NORWAY
DIRT ROAD
330 MILES
ROVANIEMI TO PETSAMO
ARCTIC CIRCLE
ROVANIEMI
SWEDEN
RUSSIA
RAILROAD
HAPARANDA
RAILROAD
FINLAND
LAKE LADOGA
VIIPURI (VIBORG)
HELSINGFORS (HELSINKI)
SCALE
100 KILOMETERS OR 62 MILES

ager, Mr. Bruce, and his nearest man, Mr. Kjellgren.

I should add that the Swedish idea now is to let the drivers rest properly in the barracks along the motor road so that proper and safest possible driving is brought about, thereby to have only one chauffeur on each truck, instead of two, and drive right through in one clip, to have the trucks serviced best and as cheap as possible, to bring more and bigger Swedish trucks into traffic, to fall back on, by preference, drivers that own the trucks and thus show more responsibility, and who can have their wives with them up there, if they like, particularly through the bad winter months. The Swedish chauffeurs make about 12.00 Swedish kronor per day plus overtime. Their union has its own Swedish official with them on the spot. When the road to start with was entirely devoid of any service stations, a mechanic would for instance charge say 50 Swedish kronor for a job that was worth 5 Swedish kronor and, at that, it was done badly, but by such developments, as mentioned above, they will in the meantime be able to cut the cost of transportation from the Swedish-Finnish frontier at Haparanda to ship at Petsamo by about 3 Swedish kronor per ton weight to about 106 Swedish kronor.

From the neighborhood of Stockholm, Sweden, to Haparanda on the Swedish-Finnish frontier the basic rail rate is 50 Swedish kronor, but for piece-goods and bulky commodities it is up to about 100 Swedish kronor, all per ton, 1,000 kilograms.

By boat from Petsamo to New York the basic rate is supposed to be about $35.00 per long ton or 40 cubic feet. For that voyage the insurance is now 1.1 per cent and war risk insurance 5 per cent plus 2½ per cent, totalling 8.6 per cent, according to the Swedish Government insurance regulations.

The fact is that, today, the lack of full transportation on the Rovaniemi-Petsamo motor road is not only dependent on the delay that the ships often must subject themselves to when passing the Atlantic blockade barrier and the subsequent delay in their making ready to take on goods, but it is also dependent on shortage of motor trucks, Finnish and Swedish, when the ships have arrived and the double import and export rush occurs. To send trucks empty either way over the distance Rovaniemi-Petsamo is too expensive. Finland, of course, suffered from its war with Russia and could not improve its fleet of trucks of proper size and power fast enough; Sweden has heavier and more modern trucks, but the majority of them are needed at home for its far-flung mobilization and state of readiness for a "Blitzkrieg." Both are doing all they can to alleviate that situation as fast as possible. The trucks take about 5 to 10 long tons each and the average today, whilst the road is good, before heavy rains and slush in the fall set in or dangerous icy conditions in the spring occur, is said to be about 6.5 long tons. Some trucks run on 4 axles, some on 4 axles plus a trailer and some on 6 axles.

The load must not be more than 2.2 meters wide owing to the comparatively narrow road and the passing of trucks and busses, but the loads sway and shift, requiring more space than so and thereby the effect on tires, bodies and motors is often terrific.

The motor road as it is today has carried 1,200 long tons in each direction within 24 hours, when the road was dry and trucks in and out as well as unloading and loading of ships did fit in. However, when autumn rains and slush set in, as well as when the spring ice covers the road, much less traffic can move and the maximum of the road as of today, i. e. the current year until next summer, is on the average expected to be somewhat below that, say 800 long tons in each direction. During the coming winter, I figure a rather satisfactory movement on the hard snow as long as it is not icy. Weekdays and Sundays are worked alike, when the ships require it, but that is not an average situation. If we, therefore, should say for said current year up to next summer 300 actual working days, it would seem that 240,000 long tons in each direction, in and out, would be the maximum—and on account also of the increasingly difficult shipping situation I do not expect even that. That would mean maximum exports of 36,000 long tons for Sweden and 204,000 long tons for Finland for that period, based on 15 per cent and 85 per cent respectively.

● I shall now make a few references in regard to the road by motor from Rovaniemi to Petsamo.

To drive a car or a truck that distance of 330 English miles in the United States is nothing, but here it is a different story. I took a mail bus with an excellent chauffeur and at a higher speed than that of the trucks, and it requried 14 hours; in fact, it took 16½ hours, but 6 stops for coffee and for military controls of passports besides amounted to 2½ hours lost time. That corresponds to a speed of about 23½ miles per hour on the average. The motor trucks' usual actual running time is about 20 hours between Rovaniemi and Petsamo or say 16½ miles per hour on the average. Some of them drive a little faster sometimes when conditions are exceptionally favorable.

It is to be borne in mind that this is practically a single-track dirt road, although it is wide enough for trucks and busses to pass; at night, during the dark season (as it is now), one car has to stop generally, finding its position as near to the soft edge as it is safe and cutting off its lights, and the other one proceeds with lights on, snaking its way past.

I took a position aft in the bus, exactly above the rear axles and I registered the bumps perfectly, those that were, but I found the road very hard and even, due to hundreds of women, boys and girls who were all along filling in holes, thus keeping the road in best possible shape. It was a good road at this time, but I have been told that it will be almost impassable when heavy rains and slush come along and when it gets icy in the spring. The former situation was evident from the fine dust that made up the top of its bed with here and there layers of blue clay. There are endless marshes and swamps that are deep and soaked with water, making upkeep difficut.

The road was built only a few years ago, I understand, and on the first mail bus run of my trip of 9 hours from Rovaniemi to Ivalo on the shores of Lake Inari, where we did stay over night, the road was maximum 8 meters wide (26 feet). However, the edge of the road being very soft and dangerous the heavy motor trucks had to keep at least 1 meter (3.28 feet) from each side, two trucks that were loaded 2.2 meters wide each but did shift to say 2.40 each required together 4.8 meters and thus there were left for passing say 1.2 meters between the trucks in the best case; often, on the other hand, that space between the trucks was cut down to about one-third of one meter or say about 1 foot. Many bad accidents and collisions had occurred, but it is better now. In many cases at first, drivers from Sweden, where one drives to the left, were said to have made head-on collisions with drivers of Finnish trucks, where one drives to the right. There were some signs of that along the road.

The spruce and pine forests, mostly pine, followed all the way to Ivalo, although on the numerous and big swamps, trees were of course meager and of very poor quality, just as in northern Sweden. On the sandy ridges between the marshes the regrowth was very good, particularly of the pine trees. In fact, I was surprised to find so much coniferous forest all the way to Ivalo, but naturally, it was increasingly sprinkled with birch as is usual towards the North.

From Ivalo, going north the next day, conditions changed considerably. After some distance we passed the big water power plant that the Finish Government is building at the end of the expansive Lake Inari, we passed through the country of the nickel mines, the town of which the Russians had wrecked completely but from where exportation will start next month, we came into a more mountainous region where all kinds of leftovers from the war, miserable looking Russian camps with the rind of the trees repeatedly gnawed off by the starving horses as high as their necks would reach, Russian block houses surrounded by wire, forests cut down at bridges and strategic lines to make free for rifle and machine gun fire and so on were to be seen right and left, we saw small settlements where every house had been destroyed in connection with the war and people now were holding on to their soil in mud huts, tents and shacks and, finally, we came over the comparatively long stretch(of barren tundra with all coniferous trees left behind and only here and there small bushes of birch. We were nearing the Arctic Ocean. Here the road on its way down to water level was getting to be much more narrow and winding around dangerously, with very bad meeting places and, decidedly, a tricky bottleneck situation for heavy trucks trying to pass during the time of the year when the road turns periously icy.

Snow usually commences here the end of September, settling down heavily about the end of November or December, and for instance this year it had remained from last winter at late as July, only in spots to be sure, but such a situation makes the road slushy and bad longer than otherwise.

However, as always, the Finns are working hard and constructively widening the road to 16 meters, but it will still be a dirt road with high slopes on each side and soft edges at a considerable distance into the road, and it cannot be compared with an American highway of that width, say 52.5 feet. Deep and broad ditches are being dug all along the road on each side, and across the wide marshes they are of course connected with outflow ditches to effect the necessary draining of the surrounding soggy country; that, in itself is a big and important part of the work. Bridges across rivers and drains under the road are now with a few exceptions in perfect condition, well built by stone, concrete, steel, etc., and as the road is being widened

that part will also be taken care of in due course to full satisfaction. About 4,500 men and women are now at work on the road.

On the other hand, that new addition to the road and with straightening-out of curves is today, to my mind, not even 25 per cent ready for the road as a whole and it could not possibly be fully ready by the end of 1941, but 1942 may see its entire completion.

I, therefore, believe that the traffic between spring 1941 and spring 1942 could safely be brought up to say 1,500 long tons daily in each direction on the average and based on 300 working days for that period, If the war lasts that long and these parts of the world are not directly affected for the worse by same, IF Finland and Sweden can for that traffic movement set free a large enough number of motor trucks along with the necessary quantities of gasoline, oil, tires, etc., and IF space in ships and a free enough movement of ships across the ocean from and to Petsamo will be permitted by the belligerent powers. The latter point will evidently be the most burning question for the period mentioned, as I have had ample opportunity to see during my seven weeks in Petsamo in connection with the numerous difficulties in regard to the loading and shipping permits for our cellulose drying machine. That would be during that particular period of one year as regards exports alone 67,500 long tons for Sweden and 382,500 long tons for Finland, of course, based on 15 per cent and 85 per cent respectively.

It should also be added, in conjunction with this road and the loading places of Petsamo in general, that Finland possesses known rich nickel, iron, copper, sulphur (pyrites), etc., deposits in the Petsamo district and adjacent territories. These and other deposits are evidently much more extensive than established so far, and will be quickly surveyed to the fullest extent. For this purpose a German geological commission in conjunction with Finnish experts were at work in at Petsamo area. New mines will be put into operation as soon as possible, and that the permanency of this road and said port facilities will for the future depend much more on such developments than on present emergency export and import activities in regard to goods (paper and pulp) that in normal times travel via Baltic ports more quickly and cheaply.

However, today, police, soldiers, shipping people, working men and so on live in tents and most primitive hammered-together wooden houses at the loading places. These mudhuts and draughty shacks will now be disappearing, new ready-made wooden houses and barracks that can withstand the rigorous winter are being built at Petsamo and its loading places, just as along the road, and the waterfront and its cliffs will in that respect take on the aspects of a more habitable place; a small but up-to-date hotel at Liinahamari will be ready in December. In the meantime, our ship with a few cabins and a smoking room and similar ships that happened to be in port were used as meeting place and "hotel" for generals, admirals and dignitaries of Finnish and foreign background that were coming to Petsamo in a fairly steady stream, and I was thus in a position to meet many of them and to gather valuable and interesting information.

Petsamo Harbor

The loading places for ships, on the west side of the Petsamo Bay which is surrounded by barren and craggy mountains, have 4 quays, one with a 25-ton modern crane, where up to 8 ships can unload and load, if, by doubling-up, one ship is lying alongside and on the outside of the one at the quay, the outside ship in that case using 3 booms, instead of 2, to transfer goods across the one at the quay. There is also a fifty quay being built for unloading gasoline and oil, to be stored in several reservoirs of which some are ready and full. The Petsamo Bay is very deep and long. Owing to the tail-end of the Gulf Stream, it is fairly free of ice the whole year, and able to hold ships of any number and size. At the beginning of October this year there were about 20 ships there, idle for a long time owing to the belated war control on the part of the Germans and the British.

Three wooden store houses for Finnish goods are being built at Liinahamari, holding chiefly outgoing pulp and paper; the capacity is about 10,000 long tons, and they are now full, about half pulp and half paper. At Trifona there is also a store house, for Swedish goods, holding about 3,000 long tons, mostly machinery, ball bearings, etc., that were stopped by said belligerent controls and running into an amount of about 10,000,000 Swedish kronor.

Precious gasoline, oil, etc., the long road to the factories and consuming centers in Finland and Sweden and all around very high costs of transportation by motor truck to and from the Finnish railhead at Rovaniemi make it impossible, economically, to run empty trucks either way and for that reason, and to unload and load ships properly and quickly, it was found best and agreed upon between the Finnish and Swedish authorities to operate the trucks of the two nations with Finnish or Swedish goods, as available at either end of the road and as required by the ships.

Without any exaggeration, to live and work in far-away, chilly and bleak Petsamo is decidedly no sinecure; practically a stone's throw to the west are the German troops occupying northern Norway, at just about the same distance to the east the Russian troops are in charge. The Petsamo district is Finnish military territory and handled correspondingly, all of which makes the situation and the feeling generally very uncertain and strained. Men working here have left their women and families where they came from and only a few "skirts" are to be seen. Strong men and also weak and shady ones are in evidence as is usual in such a Klondike situation. A very bloody war in these parts just came to an end and it is understandable why, when high wages are paid and hard liquor flows freely, the knives very frequently flash with murder as the result; nine individual murders in Petsamo occurred only during the last 4 weeks, and that was nothing unusual.

Nevertheless, Petsamo and the Great Arctic Highway to its ice-free deepwater harbor was in a way becoming a bright spot on the black map of Europe of 1940 —vivid, inspiring and very constructive —BUT September 10th, 1940, something happened suddenly!

● All loading at the Petsamo loading places was ordered stopped completely at which time 70 per cent of our machine had arrived by truck in good condition and been put aboard the "Mathilda Thorden." That and most other ships were moved out in the bay, far away. The case is that fights had occurred between Finnish and Russian troops at several places on their frontier and that Germany, in connection therewith, made considerable demands on Finland, of which the right to transport German troops from and to northern Norway with full war equipment through Finland via the Petsamo road was one.

The Germans came, settled down on the strategic key positions in the whole Svanik-Ivalo-Rovaniemi-Wasa area of northern Finland, and the very road that our machinery had been arriving on in the midst of the bustling Petsamo commercial traffic was suddenly choked wtih German trucks, tanks, guns, etc. The British took Finland to task for that and alleged that Finland supplied the Germans with gasoline that Britain had allowed Finland to bring home for Finnish consumption, and other similar political cross currents rocked the whole situation and seemed to blast all hopes for any shipments at all via Petsamo for the future.

● Another very hectic phase of my work on this machine transportation started now! I put pressure increasingly on the Finnish authorities in Helsinki, on the ship owner, on Flaktfabriken and on Karlstads Mekaniska Werkstad. Finally, when it came to my ears via the German consul and the British consul at Petsamo (both chiefly secret service institutions) that we were supposed to try to get the machine to the United States and then to send it to Canada, which the Germans would under no circumstances permit, I requested Flaktfabriken and Karlstads Mekaniska Werkstad to have the Swedish Foreign Office (State Department) to take the matter up immediately and strongly with the German authorities in Berlin and to guarantee emphatically that our machine was intended for the United States and would be installed there by a firm that has no foreign affiliations whatsoever.

I followed up the matter daily, as best I could from a boat far out in a bay in snow storms, etc., via a post office, telegraph and telephone station in Parkkina, few miles away, and the result was that when we, finally, were permitted to have the "Mathilda Thorden" cleared for the United States I was allowed to commence loading our machine again, October 18th, 1940, but all Swedish ball bearings, high grade steel, other machinery, etc., of which there were big quantities on our ship, had to be unloaded!

As the ball bearing boxes were in the bottom of the ship, under our machinery, all our 70 per cent already loaded had to be unloaded again—a procedure not very good for the fine pipe elements particularly. Afterwards, we loaded said 70 per cent again, spread out somewhat differently so as to trim the ship properly, and also the remaining 30 per cent that we had in the meantime ordered forward from places along the road from Rovaniemi where the trucks had stood since the total stoppage September 10th, 1940. The last truck ran into a ditch in a bad snow storm and almost missed the boat that had to be moved out quickly for political reasons, full cargo or part cargo, but we sent out another truck with a small crane and fished up the whole thing and got it on board in time—fortunately it was heavy plates, not easy to damage.

In connection with this, it should be

stated that this unusual and big machinery shipment was subjected to 6 handlings (loading and unloadings) up to the time we left Petsamo: at the Swedish factories on railroad cars, at Haparanda from Swedish to Finnish railroad cars, at Rovaniemi from Finnish railroad cars to motor trucks, at Petsamo (Liinahamari) from motor trucks into the ship, at Petsamo (Liinahamari) out of the ship to barges and at Petsamo (Liinahamari) from barges into ship; afterwards unloading ship in New York into barges and loading from barges into the new ship; finally the unloading that is to come at Bellingham; that will total 9 such handlings—and the machinery should arrive in quite good condition at that!

Petsamo's Future

● This question now arises: how will this new political situation affect the Petsamo export and import movement?

My reply is that it will be hampered considerably; it may even be entirely cut off! At any rate, Germany will not allow the United States to receive much. South America is in the meantime allowed to receive Finnish shipments via Petsamo on a somewhat greater scale and that is mostly paper and pulp, of course.

Besides, there is now a shortage of ships in the Baltic with rising rates, and, as the whole Scandinavian-Continental (including France, Holland, Belgium, etc.) movement is now across the Baltic under German clearing, centering in Berlin, Germany, is forcing Finnish ships into the Baltic, very often 2 or 3 steamers (that can operate on German coal there) for every motor ship (that has no fuel for operation in the Baltic) that she is permitting Finland to cross the ocean! As no other than Finnish ships are allowed to use Petsamo, from all belligerent political angles, Sweden generally refusing to subject her ships to such restrictions as the Germans insist on if she is to keep up her direct connections with the United States across the seas, and as Finland's merchant marine anyway is small, this drain on Finland's transportation by water to and from Petsamo is very serious and will make full usage of the Petsamo road impossible for export and import during the balance of the war!

The result is that between July 15, 1940, and November 15, 1940, only 5 ships will have been allowed to leave Petsamo for the United States and 7 to 9 ships will have been allowed to leave Petsamo for South America; it could not have totalled more than 10,000 long tons of pulp for the United States and 15,000 long tons of pulp for South America, inasmuch as the Finns prefer, naturally, to ship paper where they put in more work and secure more foreign currency or credit per ton. Sweden ships no pulp at all via Petsamo; 340 tons that were going out on the "Aurora" for Santos in October were thrown back by the Germans, had to be unloaded and left in Liinahamari along with Swedish ball bearings, machinery, etc.

When finally "Mathilda Thorden" was allowed to move out of the Petsamo Bay into the Arctic Ocean at daybreak Tuesday morning October 22nd, 1940, after both the German and the British consul had checked through all papers the night before on the ship (at different times!), we ran smack into a group of 9 floating Russian mines at the very entrance to the Petsamo Bay. A heavy gale was blowing with snow in the air; I was with the captain on the bridge and with these devils right in our track over a stretch of about 300 yards, squeezed in between the rocky and icy Finnish coast on one side and the official Russian mine field that one could not see on the other side, he simply had to keep on going and zigzagging between them, blue in the face for fear of a calamity, because with one mine being only 50 yards away from the ship stopping the ship would have easier caused a contact. It was, indeed, a very close call and could have been the end of this very exceptional machine transportation!

A few hours later in a blinding snow storm a German patrol boat and a destroyer picked us up and forced us into the port of Vardo in north Norway, pending instructions by wireless from Berlin. Towards the evening, our ship was allowed by the Germans to proceed to the United States.

We went straight north, then turned west and two days later tried to avoid the British patrol and mine field between Iceland and Great Britain by going into the ice far north of Iceland and follow through the protecting ice the deepest parts of the mined strait between Iceland and Greenland. However, we ran up against a solid ice barrier that choked that strait and had to turn around, losing a day and a half and taking our chance on going east of Iceland.

The captain took a chance and blackened-out the ship that night, steering on luck through the British mine field between Great Britain and Iceland where it was deepest, in the hope that no mines could be anchored there. It worked all right, but a day later the British converted cruiser that was hunting for a German raider that was known to be on the loose in that area picked us up, gave us plenty of h—— for running with lights out and trying to avoid the control! In very heavy seas and showing the finest of seamanship the cruiser's boat came over to us, sent some 30 men aboard with rifles, etc., and so we were under arrest again. The captain protested that he did not have enough oil for going to Kirkwall or Scotland to be searched and, when they did not seem to feel inclined to let us go, the captain called for me and asked me to argue with the British control officer in regard to our machine. I pointed out that we had been waiting for the machine for a long time and had now been able to arrive at that point in the Atlantic through thick and thin, and I insisted on being allowed to cable the Controller in London. Whether or not that clinched the matter before us, I do not know, but the fact is that after some further polite talk our ship was allowed to proceed to New York.

In the meantime, in addition to the 149 passengers that this boat had, a vessel built to carry maximum 18 passengers, we had 6 stowaways on board that were found the first day, but 5 days out from Petsamo frantic knocking on the plates in the No. 1 hatch during very rough weather announced the presence of another stowaway; by sawing through the heavy boxes of one of our machine parts a fellow from Poland was fished out from his cold and dangerous position, half starved and sick. I mention this, because it shows how fierce pressure and suffering that millions of people in Europe are today subjected to will make a human being at times go to any length to save his life. This man had fought the Germans in Poland, had to run and hide through Lithuania, Latvia and Esthonia when the Russians recently took those countries by agreement with Germany, had used a rowboat for 100 miles to Finland, had walked hundreds of miles to reach Petsamo, had in a snow storm been able to get aboard the ship and hide deep down in the cargo.

Continuing on our way, the captain received information about mines having been planted on the banks outside Newfoundland and he, therefore, turned south for 3 days and then started straight west towards New York, thus getting off the usual course and avoiding Newfoundland entirely.

I wired about our arrival November 6th, 1940, so that arrangements could be made for the transshipment of our machine at New York without delay and forwarding to Bellingham.

We docked at New York on that day, and I had thus brought the machine to the United States just as I had in my earlier cables from Scandinavia expressed my belief I could do. This was one of the most drawn out and difficult, but interesting, tasks that I ever had to solve.

Powell River Dam To Be Completed in Fall

● Completion of Powell River Company's new dam project to replace the temporary log crib built at the time of the original Lois River power development is expected by next fall, several months in advance of scheduled time.

Construction is being carried out by Stuart Cameron & Company, whose president, A. S. McLean, has supervised construction activities on the three stages of Powell River plant extension—installation of 5 and 6 machine rooms in 1925-27; the first big Lois River project in 1929-30 and now the permanent dam. William Way is directly in charge of the operation, working with Ned Beaton, resident engineer of Powell River Company.

B. C. Condit of San Francisco, consulting engineer who has designed most of Powell River's power developments for many years, has been advising on various technical details.

The dam is a radius-arched concrete structure, the height of the crest being 130 feet above the river bed. The length of the crest is about 600 feet. Total weight of the dam will be 125,000 tons. Rock and other material excavated totalled 32,000 cubic yards.

Longview Pulp School Course Completed

● The series of 16 lectures comprising the course in sulphite pulping, given through the vocational department of the Longview, Washington, public schools, was completed April 1st. The course was held under the supervision of George H. McGregor, class coordinator.

Classes met in the R. A. Long High School weekly for two hours on Tuesday nights. The following phases of sulphite pulping were included in the curriculum: wood preparation, water, acid making, cooking, blow pits, screenings, bleaching, pulp drying, steam and electricity, hydraulics and pumping for the sulphite process, review and general discussions.

Any person professionally affiliated with pulp and paper making at Longview was eligible to enroll for this vocational course on sulphite pulping.

Corrugated Kraft Container Building New Oakland Plant

● It must be something of a record when a firm employing 100 people, and using from 10,000 to 15,000 tons of fiber board per year, has to move twice in six months.

At least, that's the opinion of Albert H. Edwards, vice-president of Corrugated Kraft Containers, Inc., Oakland.

Last January, the firm was comfortably settled in a fine new plant on Oakland's outer harbor. Everything was rosy, and the giant corrugating machines were rolling right along, when Uncle Sam in the person of the Army Quartermaster Corps, came along and condemned the building, as well as others in the same vicinity for use as part of a huge quartermaster depot.

However, the Army realized that packaging of merchandise upon which the industrial life of America depends is as vital to this country's welfare as military defense, and so in recognition of this fact the Army has permitted Corrugated Kraft Containers Inc. to continue its occupancy of Terminal Building C until such time as its new building is completed.

Site of the new building, into which the company will move in about three months, is on Seventh Street, between Ferry and Terminal Streets, not far from the building they will have to vacate.

The new building will be a one-story structure, 640 feet by 200, and will be erected at a cost of $250,000, according to A. H. Abell, port manager and chief engineer.

Three months more will be required for completion of the building, being constructed by the Port Commission under a 10-year lease arrangement negotiated with Samuel Kipnis, president of the company.

More than 100 persons will be employed at the plant, and from 10,000 to 15,000 tons of box board for the fabrication of shipping cartons, will be shipped to the plant annually from Jacksonville, Florida. Herbert J. O'Brien is general sales manager of the company, which is a subisdiary of the National Container Corporation.

"We are very grateful to the Army for its courtesy in allowing us an extension of time in which to move, and we likewise appreciate the speed with which the Board of Port Commissioners and the operating staff have completed preliminary arrangements for our new location," declared Mr. Edwards. Mr. Edwards has been with the company for the past 10 years, and is very well known in the corrugated container field. He was formerly general manager of the New York plant of the company, and then went to the Jacksonville operation of the company. He is out on the Coast to get the Oakland operation started.

The company makes only corrugated containers, and solid fibre containers. When the new plant is set up it will have two corrugating machines, four stitchers, and two presses.

Bloch Takes A Vacation

● Louis Bloch, chairman of the board of the Crown Zellerbach Corporation, accompanied by Mrs. Bloch, left his desk in San Francisco last month, to take a trip through the Panama Canal on the new luxury liner America. The Blochs will continue to Havana, where they will leave the America and fly to Florida. Later they will go to New York and thence home. The trip will be one of combined business and pleasure for Mr. Bloch.

ALBERT H. EDWARDS, Vice President of Corrugated Kraft Containers, Inc. (left); HERBERT J. O'BRIEN, Sales Manager of the company (center); and Oakland Port Manager A. H. ABEL, watch pile driving operations at the site of the company's new waterfront building in Oakland.

Trade Talk

of Those Who Sell Paper in the Western States

Coast Printers View Examples of Fine Printing

● The Oxford Paper Company's traveling exhibit of fine printing is now on the Pacific Coast and printers and buyers of printing are finding it an excellent source of ideas. Accompanying the exhibit is Frank A. Borchers, western sales manager of the Oxford Paper Company and general sales manager of the Oxford Miami Paper Company.

The exhibit is being shown in the principal cities of the Pacific Coast under the sponsorship of Blake, Moffitt & Towne, distributors of Oxford papers for the region.

In Seattle, March 31st, Blake, Moffitt & Towne and the Oxford Paper Company jointly gave a luncheon for some 40 printers and buyers of printing at which the exhibit was inspected and discussed.

In speaking to the guests at the Seattle luncheon, Mr. Borchers said in part that the opportunity for printers today was greater than ever due to the billions of dollars being spent for defense work. The federal government's own large printing plant cannot begin to print all it is asked to print so a large amount of work is being farmed out to printers throughout the country.

Besides this direct result of the defense program, said Mr. Borchers, a tremendous amount of printing is being developed indirectly through accelerated business volume of private concerns. He urged the printers to take advantage of this opportunity by offering printing ideas to their customers. The Oxford exhibit is designed to stimulate ideas by showing what others are doing.

There will be no paper shortage said Mr. Borchers. In certain grades deliveries may be slow but there is no actual shortage imminent now nor is one likely to develop in the future.

The grading standards developed during the NRA days are all gone now Mr. Borchers told the printers. Buy the right paper for the job he urged his audience, not as No. 1 or No. 3, for those grades mean little any more.

After his short talk Mr. Borchers answered a number of questions put to him by printers and printing buyers.

Work Progressing on Zellerbach Sacramento Plant

● The Zellerbach Paper Company has announced that work is progressing on the addition to its Sacramento Division plant, which will cost approximately $50,000 when completed.

Plans call for a new two-story structure containing 12,000 square feet of storage space. In addition there will be a considerable expenditure in remodeling present facilities.

The new building will have a width of 40 feet on Front street, and will extend 150 feet to the rear street. Foundations will be strong enough to take care of additional stories when future expansion becomes necessary.

Two buildings now occupied by the company will be remodeled. The office will be rearranged and a new sample room will be built.

An air conditioning and heating plant for the entire establishment is specified in the plans. Other improvements include a new elevator, a conveyor belt system, recreational facilities for employes, parking lot, flourescent lighting, revision of the freight receiving system, and modernizing the receiving, packing and shipping departments.

The Zellerbach Paper Company entered business in Sacramento in 1920 with the purchase of the A. S. Hopkins Company. In September, 1927, a fire destroyed the plant. Another building owned by the company was remodeled and opened for operation in February, 1929.

Some eight years later the adjoining five-story building was purchased to take care of expansion requirements.

The building being built now is on part of the old site of the building which was destroyed in 1927.

The Sacramento Division has kept pace with the growth of the Sacramento Valley, and in addition new lines have been added necessitating increased storage facilities.

The building construction and renovation is under the supervision and direction of Orville Johnson, company engineer, who is the personal assistant of E. A. Breyman, vice-president of the Zellerbach Paper Company in charge of operation and administration.

Manager of the Sacramento Division is Lee J. Doherty who began the paper business with the Hopkins company in 1915, and has been manager of the Sacramento division since 1928.

J. W. THOMPSON, Manager, Blake, Moffitt & Towne, Seattle, looks over the shoulder of FRANK A. BORCHERS, Western Sales Manager OXFORD PAPER COMPANY, as the latter shows Seattle printers some examples of fine printing on Oxford coated papers.

Some 40 Seattle printers were guests of Blake, Moffitt & Towne and the Oxford Paper Company at a luncheon held at the Olympic Hotel, March 31st. In the background is part of the Oxford Traveling Exhibit of Fine Printing.

Fred Riegel Dies in San Jose

● Fred R. Riegel, 53, well known in Northern California paper circles, and San Jose salesman for Bonestell & Co., died suddenly at his home. He leaves a wife and children.

Bonestell Install Janitor Supplies

● Bonestell & Co., pioneer San Francisco paper jobbing house has established a janitor supply service for hotels, restaurants, office buildings, apartment houses, big food markets, etc.

The line includes disinfectants, sprays, chemicals, deodorants, together with the necessary equipment.

Paper Trade Conference Cancelled

● The annual meeting of the Pacific Coast paper trade at Del Monte, California, which has been held for close to 25 years, was called off this year. Philo K. Holland, chairman of the 1941 conference stated in a letter to all members of the paper industry, April 1st, "The results of a canvass made among the members of the trade as to whether or not they desire to hold a Del Monte Paper Trade Conference, this year, were so overwhelmingly against it, that I have asked Miss Wahl to cancel the Del Monte reservation and call off the meeting this year."

Mr. Holland later said that he will as the chairman last in office would assuredly again circularize the trade in ample time next year to find out if a 1942 conference will be wanted or not. If the general reaction is favorable, the meeting will be held as in previous years. With conditions unsettled as they have been, the sentiment of the industry was strongly against the meeting this year. The conference is a social affair primarily.

Reynolds Becomes Business Counsellor

● W. B. Reynolds, who for the past seven years has been the secretary for two southern California associations, the Paper Trade Conference of Southern California and the Printing Paper Conference of Southern California, announced that effective March 1st, he discontinued his official duties for the wholesale paper merchants and opened offices at 228 Wilcox building, 206 South Spring St., Los Angeles, for the purpose of serving various private enterprises in the capacity of confidential business counsellor.

Few members of the paper industry have as wide a circle of friends within the industry as Mr. Reynolds. His association goes back for a number of years. Prior to his connection in Los Angeles he was manager of a jobbing business in San Francisco, having gone to that post from a similar position with a jobbing concern in Seattle.

Harry Cook of BM&T Dies In San Francisco

● The death of Harry Edward Cook on March 27th, came as a great shock to his business associates and many friends throughout the paper and printing trades of northern California.

"Harry" Cook, as he was familiarly known, was connected with Blake, Moffitt & Towne, for the past 45 years. He was recognized throughout the trade for his authoritative knowledge of paper, and it was under his guidance that many present Blake, Moffitt & Towne salesmen received their first training.

Born in Lawrence, Massachusetts, in 1877, Mr. Cook came with his parents around the Horn to California when he was seven years of age. In October of 1896 he began his career in the paper business in the billing department of Blake, Moffitt & Towne, San Francisco. Following this he transferred his interests to merchandising activities. For a number of years he was in charge of the country sales, and more recently was connected with the city sales department.

His home was in Berkeley and he is survived by a widow, Mrs. Lydia C. Cook, and a daughter, Mrs. Joseph Blackett.

U. S. Hardware and Paper In New Los Angeles Building

● Early in March the United States Hardware and Paper Company of Los Angeles moved into its new home at 2522 S. Soto Street. The new building is one story comprising 100,000 square feet of floor space. Spacious, air-conditioned executive offices, ample factory and warehouse space, rail connections and central location in the Los Angeles manufacturing district combine to make this an outstanding new development.

The company has operated in the Los Angeles area for fourteen years. President of the firm, Sam Abrams, was connected with the Star Paper Company for three years prior to starting the United States firm. Four years after launching the United States company, he bought the older firm out.

Other officers in the United States company are Max Abrams, vice-president; Ben Abrams, secretary and sales manager of the paper division, and W. C. Hogan, treasurer.

The company is a jobbing house for all types of coarse papers, paper bags, wrapping papers, toilet paper, paper towels, napkins, boxes, board and twine. It handles the bags of the Union Bag and Paper Company. Its lines of butcher papers are the products of the Columbia River Paper Company at Vancouver, Wash., and its affiliate, California Oregon Paper Mills, Los Angeles, Calif.

A separate company, Consolidated Paper Manufacturing Company, leases a 20,000 square foot area in the building where it conducts an independent converting operation. The firm converts napkins, toilet paper and paper towels. P. W. Bedder is head of the concern and L. S. Young is in charge of production.

The United States Company's new building covers 100,000 square feet and has an additional ground space available behind the present structure of another 100,000 square feet. Five freight cars can be unloaded at a time from spur lines running to the building. Space for handling twenty trucks is also available. The company moves its products by contract carriers but also operates six trucks of its own.

The building is modern in every detail. The offices are insulated with Thermax, a wood fiber material which protects the area from both noise and temperature differences. The warehouse and factory are lighted from above by skylights from the sawtooth type roof. There is a large banquet room on the premises including a bar, tile showers for the workmen, two large sample rooms, and a kitchen. The northwest corner of the building is leased to a restaurant company, with a direct entrance to the company for easy access of employes.

A newly designed conveyor system in the warehouse of more than 300-foot length speeds order filling and stock room operations. Special trucks have been designed for order clerks who because of the size of the place push these around with skates adding greatly to the efficiency of the warehouse.

Zellerbach Paper Building in Redding

● Due to the inability of the Zellerbach Paper Company to rent a building suitable for its needs, it is erecting a small building in Redding, Calif., to house that branch.

The Redding branch of the company is operated under the personal direction of Lee J. Doherty, Sacramento Division manager of the company. Roy Evans is Redding branch manager.

Henry Zellerbach Recovering from Illness

● Henry Zellerbach, head of the mat paper department of the Zellerbach Paper Company, and well known to Pacific Coast newspaper publishers, is convalescing at his home following a serious illness.

SAM ABRAMS, President U. S. Hardware & Paper Co., Los Angeles.

Everett Pulp & Paper Marks Fiftieth Anniversary

● The fiftieth anniversary of the founding of Everett Pulp & Paper Co. occurs May 8th. Less than two years before statehood had been conferred on the Territory of Washington the company began production of paper at Everett, Washington. Those were indeed pioneer days in the Pacific Northwest.

Visioning the opportunities latent in the evergreen corner of the nation with vast resources of timber, rich soil, fish, potential water power, and transportation advantages, a group of eastern capitalists launched an extensive development project at the townsite of Everett, less than thirty miles north of Seattle. Of the plants then erected, including a smelter, a shipbuilding yard, and a wire nail factory, only the paper mill is now operating. Its products have penetrated into world markets.

Started as The Puget Sound Pulp & Paper Company (changed to its present name on March 30, 1895), the mill was built on the Snohomish River, just above tidewater. Its original machinery was brought around Cape Horn on the Steamer Charles W. Wetmore, which landed it on the mill wharf at Lowell. Now it has not only the water route, but three transcontinental railroads, too.

Originally a soda pulp mill of 15 tons daily capacity and a two-machine paper mill of equal capacity were installed, the first paper coming off in July, 1892. Capacity was subsequently increased to 35 tons a day and to 70 tons daily in 1926, when electric power was installed. At the outset it was planned to make machine-finish book, manila and express wrapping paper, cover stock and commercial writings. Today the mill is running to maximum capacity on book, label, and writing papers. Its auxiliary stationery department of 250 tons monthly capacity specializes in the remanufacture of paper into broad lines of school and commercial items. It operates its own box factory for packing cases and containers.

Pioneer president of the enterprise was Henry Hewitt, Jr. W. S. Barnes was superintendent and manager, and William Howarth assistant treasurer.

February 1, 1896, is a significant date in Everett's history, marking the stepping up of William Howarth to the managership and the appointment of A. H. B. Jordan as superintendent, the two men who were to head the business throughout the intervening years.

In 1898 John D. Rockefeller acquired a controlling interest in the company and his private secretary, F. T. Gates, became president, and Mr. Howarth was elected treasurer. Early in 1902 Mr. Howarth, his brother Leonard, and Mr. Jordan purchased the Rockefeller interest and all other interests in the company. At that time Mr. Howarth was elected president and treasurer, positions he was to hold until his death in 1937. Simultaneously Mr. Jordan was elected vice president, retaining the superintendency; he succeeded to the presidency in 1937.

Singularly enough 1902 was the year that a new office boy entered Everett employ. He did some climbing up the rungs of the advancement ladder with the years and at the approach of the concluding year of his fourth decade of service he is the active executive of the enterprise. That man is William J. Pilz, Everett's vice president and general manager for the last ten years. He had been advanced to the managership in 1928; he holds also the office of secretary.

Assistant manager is Anson B. Moody, associated with the company since 1927 and previously identified with the shipping business in an executive capacity. He has held the rank of assistant secretary for many years.

L. P. Fortier became superintendent at Everett in 1936, bringing to that post twenty-five years' experience as a practical paper maker and as general superintendent at several eastern mills.

Everett's sales offices in San Francisco are headed by R. A. Gates, in charge of main mill sales, and John E. Horton, in charge of stationery and tablet department sales. In Los Angeles A. A. Ernst is in charge. H. E. Stewart and Jerry LeCuyer, with offices at the mill, represent Everett in the Northwest.

Everett papers find their way into practically all countries bordering the Pacific Ocean in normal times, down into Central and South America, and through western U. S.

Waste Paper Supply Situation May Become Serious

● In an editorial under the above head the Daily Mill Stock Reporter of New York for April 8th had the following to say about the waste paper supply situation:

"Not in a long time, perhaps never before has the demand for paper boxes and shipping containers and paper board been quite so voluminous as at present. Board mills are working at top speed in an effort to satisfy this demand and yet, from all reports, they are falling behind in deliveries, late figures showing they have some 300,000 tons of unfilled orders on hand. Box and container manufacturers the country over are calling for more and more paper board of all grades, and it would seem their needs in board are well nigh insatiable.

"Moreover, and this is a most important feature in the market situation, there appears every reason to believe this abnormal board demand will keep up. As a result of the scarcity of and defense priorities for certain materials, additional demand is being developed for paper board. Take, by way of example, the item of tin, which is a priority commodity and which therefore is not available in usual quantity for the ordinary uses to which it is put in industry and commerce. In other words, with tin difficult to get, the tin container supply is adversely affected, and in consequence thereof it is evident the use of paper containers in place of tin and other metal containers is rapidly increasing.

"Another important factor is that the Federal Government not so long ago switched from wooden boxes to fibre shipping cases for the shipment of various clothing and other textile articles as well as the hundred and one additional items of equipment for the Army and Navy forces. This one change alone led to a tremendous increase in demand for and consumption of paper board and paper containers. There is no question that hundreds of industrial plants have been obliged to use paper boxes and shipping cases as a substitute for metallic and other containers which now are hard to get.

"Along with this broad expansion in the use of paper board and boxes is a further new and vast market in process of development. Within the near future it is expected there will be 2,000,000 men in the armed forces of the nation in scores of training camps, posts, air fields and arsenals. This huge number of men will require an enormous supply of food and various other articles of clothing, equipment, etc. It is estimated that the cost of feeding and equipping this large army will run in the neighborhood of several billions of dollars a year. Most of this amount will be expended in feeding this army and tremendous tonnages of paper boxes and containers of every description will be required for packaging and shipping the nuemrous varieties of foodstuffs to the training camps and other Army and Navy posts.

"In addition, the retail movement of merchandise of all classes is showing a

consistent increase. Latest statistics reveal that the volume of retail business in the United States thus far this year has risen 12 per cent over that of a year ago, indeed a broad gain. This also means a large increase in the demand for and use of paper boxes and containers of all kinds.

"It is therefore obvious that the paper board and box industry faces a demand which will necessitate continued maximum operation of its production facilities. Obviously, too, the big demand for waste paper and other raw materials for the paper board manufacturing industry will keep up. It is not at all unlikely that the problem of ample supplies of waste paper will become more serious than it now is, and there is no questioning the fact that some board mills are experiencing considerable difficulty in securing all the supply of raw material needed to keep pace with their present heavy consumption.

"In fact, it would not be at all surprising to see before long the waste paper industry go through the same experience that has befallen scrap metals and scrap iron."

Visitors to Coast Paper Trade

● E. V. Johnson, vice-president of the United States Envelope Company, Springfield, Mass.

● Ed Hughes of Strathmore Paper Company, West Springfield, Mass.

● John McLaurin of McLaurin-Jones Co., Brookfield, Mass.

● N. O. Seagrave, sales and advertising manager of the Port Huron Sulphite & Paper Company, Port Huron, Mich.

● Fred E. May, vice-president of the Rising Paper Company, Housatonic Falls, Mass., was renewing friendships on the Coast last month. This was his first visit in 12 years.

● Ray X. Pfiffner of the Whiting-Plover Paper Company, Stevens Point, Wis.

● Ray Wight, representing Crane & Co., Inc., Dalton, Mass., was a recent Pacific Coast visitor.

● E. J. "Ed" Hanigan, Dennison Manufacturing Co., Framingham, Mass., called on friends in the Pacific Coast paper trade last month.

● Visiting San Francisco and other Coast points last month was Robert Brown of the Cromwell Paper Company, Chicago, Ill.

Cashmore of Paterson Visits Coast

● C. H. Cashmore, president of the Paterson Parchment Paper Company, Bristol, Pa., and the Paterson Pacific Parchment Company, San Francisco, was a Pacific Coast visitor last month. Mr. Cashmore was accompanied as far West as Fort Bliss by Mrs. Cashmore, who stopped off there to visit her daughter and son-in-law, an Army officer, who are stationed there.

Kelly Now With Carter, Rice & Company

● J. W. Kelly, formerly with the General Paper Company in San Francisco and well known in the California paper trade, is now connected with Carter, Rice & Company, Corporation, San Francisco.

Fibreboard's New Potato Carton Making Big Hit

● A new merchandising innovation that makes women say: "Why didn't someone think of this before?" is the new carry-home carton for Snoboy potatoes being introduced to Seattle grocers by the Pacific Fruit and Produce Company.

The packages, which are manufactured by Fibreboard Products Inc., are double wall corrugated construction and are designed to carry 10 or 15 pounds of Snoboy potatoes. An ingeniously constructed handle makes the package easy to carry, insures safe transportation of its contents and is a decided improvement over former methods of packaging.

The Pacific Fruit and Produce Company is making an aggressive campaign to popularize the carton among Seattle grocers and their customers, with newspaper and point-of-sale advertising. This company is the first one to introduce this particular type of carry-home carton.

Among the advantages listed in the advertising of the Pacific Fruit and Produce Company for the easy-to-carry carton are: assured profit—the grocer buys 15 pounds of potatoes and sells 15; no loss—as in over-weighing when putting bulk potatoes in sacks; saves time—no handling, sorting, packaging or weighing; saves cost of bags—potatoes are delivered to the grocer's door packed, ready to sell; sanitary—no dirt, Snoboy potatoes are clean; easier to display than bulk—less handling, fuss and bother; quick sales; no waste—the grocer sells every potato, shrinkage eliminated; and a money back guarantee to the grocer's customers.

However, one of the greatest points about the package is its eye-appeal. Handsomely printed in chocolate and gold, the carton lends itself admirably to display purposes in the retail store, and also as a medium for spreading advertising for Snoboy potatoes.

Seen on the grocer's shelves, or being carried along the street, the Snoboy "symbol of quality" is sure to be seen and remarked upon favorably.

Herb Becomes American Citizen

● John J. Herb, president of the Pacific Coast Paper Mills of Bellingham and of the Westminster Paper Company, New Westminster, B. C., was one of forty-four petitioners and of ten Canadians who were granted American citizenship in the Federal Court in Bellingham April 2nd by Judge John C. Bowen.

NEW POTATO CARTON made of double-walled corrugated board by FIBREBOARD PRODUCTS INC., for the PACIFIC FRUIT & PRODUCE CO., of Seattle, is proving highly popular with women buyers and with the grocers themselves.

CLAUDE E. JEAN, fireman, receives his 10-Year Service Pin while on duty, from GEORGE J. CROPPER, Tacoma Division Manager, Rayonier Incorporated.

Shelton and Tacoma Rayonier Men Awarded Service Pins

101 men received 10-year service pins and 55 awarded 5-year pins at dinners given in their honor.

RAYONIER INCORPORATED honored 10 and 5-year employees of the Shelton and Tacoma Divisions at dinners held in the respective cities February 11th and 12th.

At the dinner in Shelton, Washington, on February 11th at the Shelton Hotel, 17 men received 10-year pins and 34 received 5 year pins. The following evening at the Tacoma Hotel in Tacoma, 84 were awarded 10-year pins and 21 were given their 5-year pins.

The Shelton Dinner

● George J. Cropper, resident manager of Rayonier Incorporated, Shelton Division, welcomed the men to the dinner in their honor. Mr. Cropper said it was a pleasure to announce that over 50 per cent of the employees at Shelton are holders of pins for five or more years' service with the company. This, he said, indicated that working conditions were satisfactory and from the company's viewpoint that the men are doing a splendid job.

Billy Welsh of the industrial relations department was introduced as the toastmaster of the evening by Mr. Cropper. It is good, said Mr. Welsh, for the men of Rayonier and the men of the community outside the company to break bread together, for by knowing one another the bonds of friendship and understanding within the community are strengthened. Mr. Welsh introduced William E. Stevenson, mayor of Shelton, who remarked that the people of Shelton appreciate Rayonier employees living in the town for they exert a fine influence over civic affairs. He asked that they, in enjoying the privileges of living in Shelton, also accept the responsibilities of citizenship. In closing Mayor Stevenson wished the men and Rayonier Incorporated continued prosperity.

Toastmaster Welsh announced that one of the honor guests, Arthur B. Govey, manager of the Simpson Logging Company, was celebrating that day his 70th birthday and the 50th anniversary of his association with the logging company. The group sang "Happy Birthday to You," to Mr. Covey who expressed his thanks.

● The address of the evening was given by Alexander R. Heron, director of industrial relations for Rayonier Incorporated. Mr. Heron spoke on "Invested Years." Said he, time slips through our fingers, we cannot stop it. We speak of "spending" time. We "spent" so much time doing this or that or in one place or another. Whether we are spending money or spending time we are always buying something with it.

The question is, said Mr. Heron, do we have anything left when we have "spent our time"? He said he didn't know of any place where there is a better answer than in Shelton.

If one were to choose his employer, he would choose one with the best cooperative spirit among the employees said Mr. Heron. Then having "spent" so many years with the company one would have something left. He would have bought increased skill, increased friendships, increased joys of family life, a reputation for consideration of his fellow men; and, if he lived in Shelton, he would probably own his own home for a very large proportion of the Rayonier men own theirs.

Service pins, Mr. Heron told the group, are not worth much in gold, but they are of great intangible value for they represent "invested time."

Those who have service pins have a stake in Rayonier, a stake that can't be sold as a stockholder can sell stock for invested time cannot be sold. These men who have invested their time must follow through and help management. They want to know that there is wise management; that their investment is sound; that the company, through research, is protecting their future by keeping products in pace with outside developments.

Rayonier's management appreciates this responsibility, said Mr. Heron, and endeavors to protect the future employment of employees. Through lack of planning, lack of awareness to progress, some business enterprises have disintegrated and the communities where they once lived have become ghost towns. "But we of Rayonier," said Mr. Heron, are "investing our time" in a forward looking enterprise.

Mr. Welsh introduced W. Lloyd Raymond of Seattle, vice president of Rayonier Incorporated who presented service pins to the following men:

Shelton
5-Year Service Pins

● **C. H. Anderson, O. W. Anderson, John Bender, Hubert Bezley, C. Brown, Wilbert Catto, John Cole, Joe Earle, John Hogan, P. E. Jacobs, W. C. King, E. A. Lovell, G. J. Merrick, Harry G. Moir, Raymond D. Morkert, Jack Nunro, Frank Murdock.**

• Art Nichols, Larry Oliver, Louis Paris, G. M. Randall, Wayne Robertson, Cleave Robinson, M. D. Rodgers, Karl Rose, Paul Schlosser, B. E. Schrader, Roy Simmons, O. Spinharney, E. N. Steele, Robert E. Stoy, C. E. Tozier, L. C. Van Arsdale, W. F. Wonch.

10-Year Service Pins

• L. E. Attwood, C. H. Avery, R. E. Brown, Oral Burnett, Chas. S. Cole, Raymond Collins, William Cooper, George J. Cropper, C. L. Dunseath, T. J. Farrell, A. H. Jackson, R. E. Kingsley, Robert Miller, R. N. Pollock, T. Robertson, Winston Scott, W. J. Sivo.

The Tacoma Dinner

• The first Rayonier service pin dinner to be held in Tacoma was attended by 105 men in addition to a number of guests. Division manager, George J. Cropper introduced William D. Welsh of the industrial relations department who served as toastmaster.

Mr. Welsh introduced the guests, D. R. Robinson, president of Local 199 of the International Brotherhood of Pulp, Stevenson, secretary of the Tacoma Chamber of Commerce; Harry Cain, mayor of Tacoma; Henry Foss, president of the Foss Tug & Barge Company; E. B. Stevens, of the Western Clinic; and, John Sherman, vice president of the International Brotherhood of Pulp, Sulphite & Paper Mill Workers.

Mayor Cain, introduced by Mr. Welsh, said that Tacoma was happy to have Raycnier's plant in Tacoma. His own personal definition of democracy, he told the group, was labor and capital working together. Here at the service pin dinner was an example of cooperation, the type of cooperation that had built the country and would continue to carry it forward. Mutual recognition of the part played by employees and management, of which this dinner is an instance, contributes to the healthy growth of the American democratic way of life, said Mayor Cain in closing.

• Mr. Welsh introduced two old-timers, John J. Hurney and Frank E. Vanderflute, and then introduced Alexander R. Heron, director of industrial relations for Rayonier Incorporated, who spoke on "The Meaning of the Service Pin."

Mr. Heron told of his work with the Defense Advisory Council in planning training programs on the Pacific Coast to develop skilled workmen for defense industries. For the duration of the emergency Rayonier is giving a good part of his time to this public work. Other industries are loaning men, too. Labor is contributing its share, said Mr. Heron, by assigning its best men to work on the training program. It is an example of cooperative, democratic action which will bring all Americans closer together.

As this was the first service pin dinner to be held by Rayonier in Tacoma, Mr. Heron explained fully the meaning of the service pin. It is a symbol, he said, of our working together, of our invested time, of our success as part of a successful enterprise, of our common bond in Rayonier, whatever is our individual work.

W. Lloyd Raymond, vice president of Rayonier Incorporated of Seattle awarded the service pins to the men present.

• As eleven of the men to receive pins were on shift at the mill, George J. Cropper, division manager, A. R. Heron, William D. Welsh and a number of others, went to the mill afterwards where Mr. Cropper personally presented the pins to the men on the job. Those who missed the dinner because of work and who received the pins at the mill, included William F. Hulscher, a five-year pin; Martin Belaich, Jr., Clarence E. Caldwell, Leslie G. Drake, Michael J. Hagala, George O. Hartman, Claude E. Jean,

The Shelton Division men of Rayonier Incorporated in the above pictures received 10-Year Service Pins . . . No. 1, left to right, rear row, L. E. ATWOOD, R. E. BROWN, RAYMOND COLLINS, A. H. JACKSON, C. H. AVERY . . . Front row, left to right, T. J. FARRELL and GEORGE J. CROPPER.

No. 2, rear row, left to right, R. N. POLLOCK, ROBERT MILLER, T. ROBERTSON, R. E. KINGSLEY, WILLIAM COOPER . . . Front row, left to right, C. L. DUNSEATH, W. J. SIVO and WINSTON SCOTT . . . ORAL BURNETT was unable to attend because of illness.

Arthur M. Johnson, Darrel B. Packard, Mike Rumble, and Ernest E. Troy, all of whom received ten-year pins.

The following are the men of the Tacoma Division of Rayonier Incorporated who received service pins:

Tacoma

5-Year Service Pins

● Howard R. Allen, Roy W. Boje, Burnard E. Burleson, Morino Carmignani, Arthur C. Christensen, King E. Davidson, George R. DeFolo, Adolph L. Eggen, Ronald E. Fetterley, William E. Hulscher.

● Anton Iskra, Gerald L. Jackson, Victor F. Jurach, Robert L. Kettenring, John C. Lien, M. Lorne Miller, Virgil H. Miller, Henry L. Mockel, Cecil E. Myers, Albert W. Purdy, Leo L. Stone.

10-Year Service Pins

● Wm. S. Barringer, Martin Belaich, Jr., Thos. C. Burton, Frank K. Busse, Clarence E. Caldwell, Frank J. Clark, Robert M. Cohoon, Bert W. Conrad, Albert E. Dalrymple, Walter W. Davis, Riley W. Denton, Ira O. Dickson, Daniel R. Dobbins, Leslie G. Drake, Harry L. DuCharme.

● George E. Durkee, Carl L. Eggen, George L. Eicher, Stanley P. Elder, Eric Everett, James M. Flynn, George R. Gaidosh, Edward A. Glueck, Michael J. Hagala, Francis C. Hall, George O. Hartman, Leslie L. Hoff, Joseph Hora, John G. Horn, Alex Huppert, John J. Hurney.

● Joseph Iko, Claude E. Jean, Arthur M. Johnson, Ivan J. Kindelan, Vertin M. Koenen, William Kohler, Bernard S. Kremer, Ralph Kuhl, Edgar A. Lebert, Joseph LeFaive, Ernest C. Lemley, David J. Lloyd, Bartlett N. Longen, Maurice F. Longen, Arlin McLellan, Roy McWherter.

● Theodore A. Manteufel, James Martin, Edward Mayer, Charles E. Mika, Iver Moe, Forrest O. Norris, Wayne E. Norris, Lyle B. Olsen, Carl B. Onan, Phillip A. Onan, Darrel B. Packard, Peter A. Parent, Wallace D. Parker, Verne L. Prase, Frank Piazza, Carl H. Roberts, Arvid M. Rosedahl, Mike Rumble, Lars M. Saasen, Reidulf Saasen, Wenzel Seigertschmidt.

● Wallace J. Simms, James Slapak, Louis Solondek, Albert V. St. Cyr, Arthur Stocklin, John M. Stolen, Henry J. Strahley, William J. Thompson, John H. Trent, Ernest E. Troy, Frank E. Vanderflute, Archie L. VanVoorhees, Thomas Vizzard, James A. Waller, James T. Welch.

Port Angeles Has Interesting Booklet

● Ten thousand copies of an interesting 24-page booklet, "A Brief History of Port Angeles, Washington," rolled off the presses in January in an unusual cooperative project of the three pulp and paper companies having plants at Port Angeles and the Chamber of Commerce of that community.

The condensed history of the colorful port on the Strait of Juan de Fuca was written by William D. Welsh, former Port Angeles newspaper editor, now connected with the executive offices of Crown Zellerbach and Rayonier corporations. These companies and Fibreboard Products, Incorporated, jointly sponsored publication of the booklet with the Port Angeles Chamber of Commerce, which is distributing it.

Thousands of copies have been given out to Port Angeles residents free of charge and a large percentage have been mailed to friends and relatives over the country and as far distant as Norway.

Text of the book is printed on newsprint from Crown Zellerbach's Washington Pulp and Paper division at Port Angeles and the cover is of a sulphite screenings wrap made in an Olympic Peninsula mill. Attractive illustrations, drawn by Bob Rose of San Francisco, simulate old-time woodcuts.

Neah Bay Logging Operations Resumed

● The logging division of the Crown Zellerbach Corporation at Neah Bay at the northwestern tip of the Olympic Peninsula resumed operations February 28th after a winter shutdown of several months. First crib of logs from the Sail River booming grounds of the Neah Bay Camp came to the Washington Pulp & Paper Corporation, Division of Crown Zellerbach Corporation, newsprint mill at Port Angeles March 6th.

The present logging is south of Neah Bay village, along the Pacific Ocean coast, under the direction of Superintendent Harold Goodrich. Approximately 210 men are employed.

Portland Safety Engineers Form Society

● The Portland Society of Safety Engineers was organized at Portland, Oregon, in December, 1940, by a group of men engaged in safety and accident prevention work in governmental projects and private industry. The society was formed with the objective of promoting the cause of safety and accident prevention in industry. Regular meetings of the society are held the first Monday of each month in the auditorium of the Public Service Building, at which safety educational discussions take place.

The officers are, president, Merrill D. Ely, chief safety engineer of U. S. War Department Engineers, North Pacific Di-

The Shelton Division men of Rayonier Incorporated in the above picture received 5-Year Service Pins ✓ ✓ ✓ Rear row, left to right, C. BROWN, RAYMOND D. MORKERT, CLEAVE ROBINSON, G. J. MERRICK ✓ ✓ ✓ Front row, left to right, C. E. TOZIER, ART NICHOLS, FRANK MURDOCK, E. N. STEELE ✓ ✓ ✓ LARRY OLIVER was ill and could not attend.

vision; vice president, R. A. Stanton, district safety engineer with U. S. Engineers, Bonneville, Oregon; secretary-treasurer, Miles Murray, of Rayonier Incorporated and Crown Zellerbach Corporation.

The Executive Committee is composed of the following members: Kenneth R. Field, safety engineer for Consolidated Freightways; Charles A. Lee, Bureau of Labor, state of Oregon; E. R. Turner, safety engineer for Pacific Indemnity Company, Portland.

Organization of the safety group was patterned after the American Society of Safety Engineers with view of affiliating with the national organization.

Membership is open to all persons following the safety engineering profession in various industries. Applications for membership from indivduals in charge of safety and accident prevention work in the pulp and paper mills in the vicinity of Portland will be welcomed.

The Shelton Division men of Rayonier Incorporated in the above pictures received 5-Year Service Pins . . . No. 1, Rear row, left to right, JACK MUNRO, JOHN BENDER, HARRY G. MOIR, LOUIS PARIS, HUBERT BEZLEY, WILBERT CATTO, JOE EARLE . . . Front row, left to right, B. E. SCHRADER, JOHN COLE, O. SPINHARNEY, and W. C. KING.

No. 2, Rear row, left to right, ROBERT E. STOY, E. A. LOVELL, W. F. WONCH, PAUL SCHLOSSER, JOHN HOGAN, ROY SIMMONS, M. D. RODGERS . . . Front row, left to right, O. W. ANDERSON, G. M. RANDALL, WAYNE ROBERTSON, and KARL ROSE.

Photo at left shows Clarage Induced Draft Fan installation, handling stack gases at 450° F. Note that bearings are water cooled to protect lubrication from extreme heat.

Complete installation also includes Clarage Forced Draft Fan. Both fans serve a Babcock & Wilcox Boiler. *Engineers: C. C. Moore & Co., Seattle.*

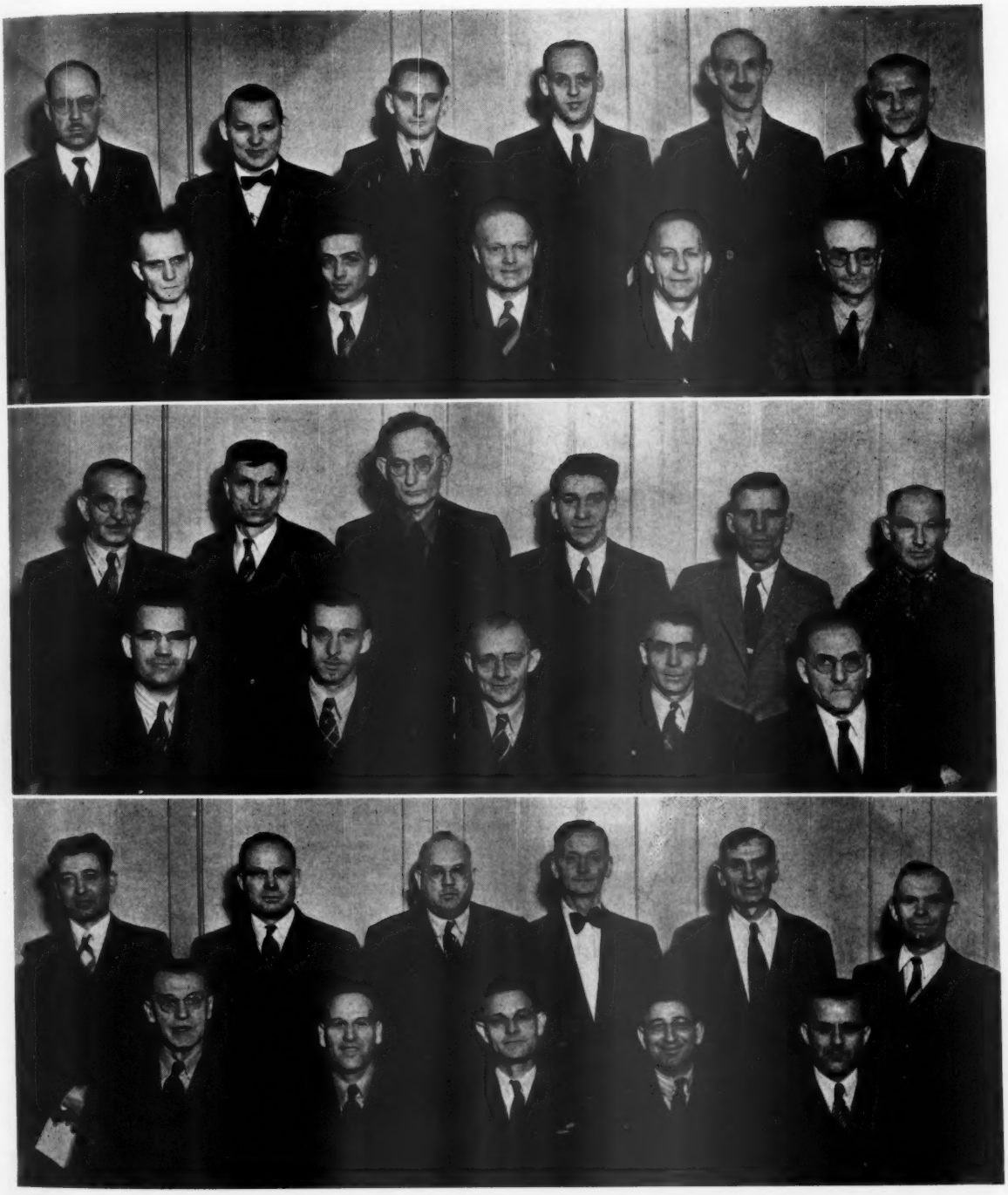
THE PACIFIC NORTHWEST is no different from the rest of the Country. Its industry favors the brand of performance obtainable from Clarage Fans.

In this new steam plant unit of the Soundview Pulp Company, Everett, Washington, Clarage Fans handle the mechanical draft — operation continuous, a tough job!

If you need fans or blowers for ANY industrial purpose, give Clarage a try! You'll find, as thousands of executives have discovered before you, that Clarage Equipment has "what it takes."

COMPLETE AIR CONDITIONING • COOLING • VENTILATION • FACTORY HEATING • MECHANICAL DRAFT • FANS and BLOWERS for INDUSTRIAL NEEDS

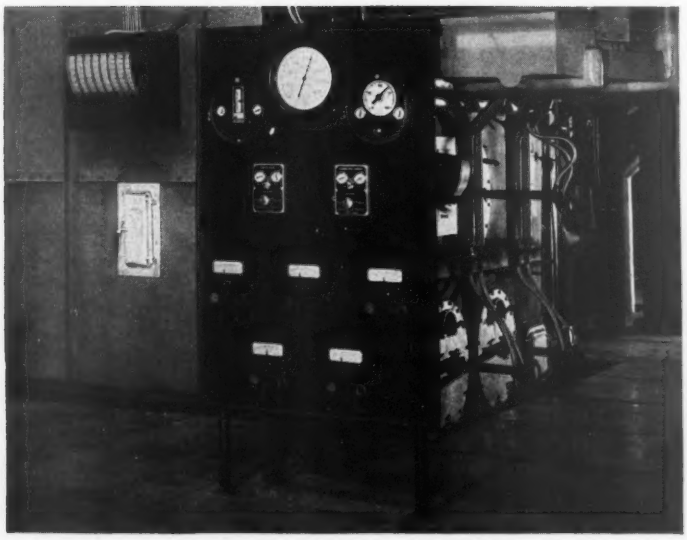
CLARAGE FAN COMPANY—KALAMAZOO, MICH.
SALES ENGINEERING OFFICES IN ALL PRINCIPAL CITIES



The Tacoma Division men of Rayonier Incorporated in the above pictures received 10-Year Service Pins . . . No. 1, Rear row, left to right, ARTHUR SANDIN, WAYNE E. NORRIS, ALBERT V. ST. CYR, LARS M. SAASEN, RALPH KUHL, WENZEL SEIGERTSCHMIDT . . . Front row, left to right, STANLEY P. ELDER, ERIC EVERETT, JAMES SLAPAK, IVER MOE, BURTON HAYES.

No. 2, Rear row, left to right, JOSEPH HORA, WALLACE J. SIMMS, JAMES A. WALLER, BERNARD S. KREMER, ARCHIE L. VAN VOORHEES, WILLIAM KOHLER . . . Front row, left to right, GEORGE E. DURKEE, GEORGE R. GAIDOSH, JOHN H. TRENT, IVAN J. KINDELAN, BERT W. CONRAD.

No. 3, Rear row, left to right, FRANK PIAZZA, LESLIE L. HOFF, RILEY W. DENTON, ARTHUR STOCKLIN, JOHN J. HURNEY, ALEX HUPPERT . . . Front row, left to right, FRANCIS C. HALL, JOSEPH LeFAIVE, VERNE L. PARSE, FRANK K. BUSSE, PETER A. PARENT.



Bailey Meter Control Panel installed on combination hogged fuel and oil fired furnace at Soundview Pulp Company, Everett, Washington.

SOUNDVIEW PULP COMPANY INSURES STEAM ECONOMY

Automatic Operation by Bailey Meter Control continuously secures fuel oil economy, uniform steam pressure and flexibility of operation

★ At the Soundview Pulp Company, Everett, Washington, boiler operators of the combination hogged fuel and oil fired boiler are provided with a reliable means of automatically maintaining steam pressure and fuel oil economy. Here three boilers are automatically operated by Bailey Meter Combustion Control.

Daily boiler efficiencies equal to test standards are secured by the use of complete combustion control which (1) automatically maintains desired steam pressure, (2) automatically maintains most economical fuel—air ratio for oil, fired in conjunction with hogged fuel, (3) automatically maintains the desired furnace draft, (4) provides for any desired division of load between boilers.

Being an integral part of the control system, the Bailey Fuel Flow—Air Flow Controller sees combustion changes as they occur and with a true eye to economy automatically operates the control, readjusting oil flow as required to maintain best combustion efficiency.

Because of the continuous fuel economy, the added boiler safety and the added plant reliability which they afford, meters and automatic control are one of the best means available today by which power plant operators can secure the maximum capacity from steam generating units.

Defense loads are taxing boiler plants in many ways—7-day 3-shift operation, inferior fuel, labor shortage, high and extended peak loads are common in many plants—Bailey Meters and Control can help you meet these conditions. Write, wire or phone for a representative or for literature.

A-69

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No. 2, Rear row, left to right, MAURICE F. LONGEN, BARTLETT N. LONGEN, WM. J. THOMPSON, REIDULF SAASEN, JAMES MARTIN, EDGAR A. LEBERT . . . Front row, left to right, LOUIS SOLONDEK, WALTER W. DAVIS, HENRY J. STRAHLEY, GEORGE L. EICHER, CARL H. ROBERTS.

No. 3, Rear row, left to right, JOHN M. STOLEN, ARLIN McLELLAN, WALLACE D. PARKER, THOMAS VIZZARD, JOSEPH IKO, PHILLIP A. ONAN . . . Front row, left to right, JOHN G. HORN, ARVID M. ROSEDAHL, JAMES M. FLYNN, ERNEST C. LEMLEY, HARRY L. DuCHARME.

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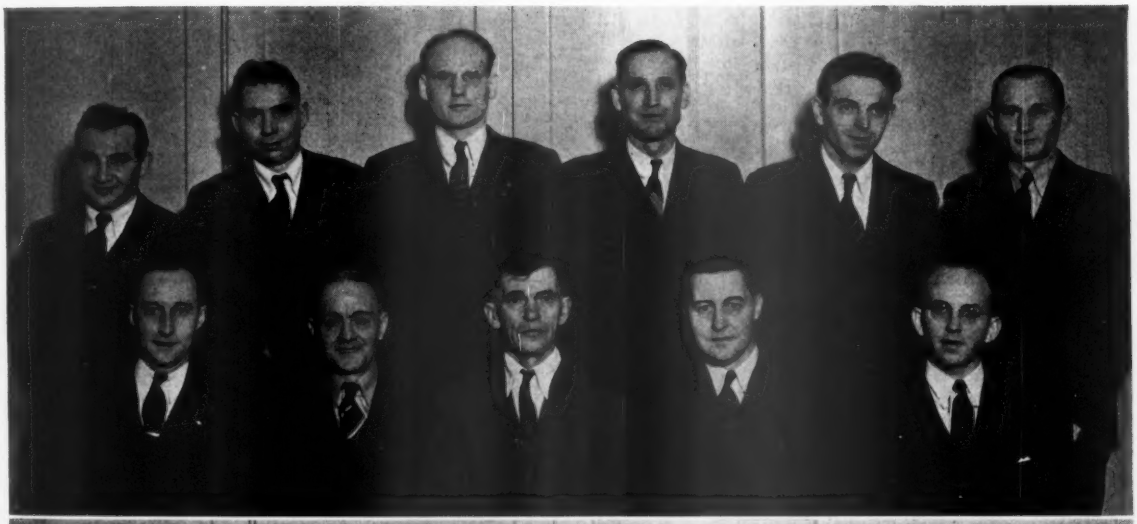


The Tacoma Division men of Rayonier Incorporated in the above pictures received 5-Year Service Pins / / / No. 1, Rear row, left to right, ADOLPH L. EGGEN, MORINO CARNSIGNANI, ROBERT L. KETTENRING, LEO L. STONE, ARTHUR C. CHRISTENSEN, VICTOR F. JURACH / / / Front row, left to right, CECIL E. MYERS, BURNARD E. BURLESON, ANTON ISKRA, ROY W. BOJE, RONALD E. FETTERLEY.

No. 2, Rear row, left to right, M. LORNE MILLER, ALBERT W. PURDY, GEORGE R. DE FOLO / / / Front row, left to right, VIRGIL H. HILLER, GERALD L. JACKSON, HENRY L. MOCKEL, KING E. DAVIDSON.

Paper Milk Containers Gain in California

● The rapid strides made by the paper milk container in California was well shown in an interesting paper read by E. L. Vehlow, Fluid Market Assistant, Bureau of Markets, California State Department of Agriculture, at the International Milk Dealers Association convention in 1940.

In his paper, which is entitled "The Single Service Container and Its Effect on Milk Distribution Costs," Mr. Vehlow points out that single service milk container was not a factor to be considered in California until 1939, when the Legislature passed an act permitting the use of the factory formed container. Prior to the revision of the Agricultural Code, legal use of containers was restricted to those sterilized on the premises where milk was packaged.

From nothing then, the use of the paper milk container has grown in California until in the month of August, 1940, approximately 55% of all milk sold to consumers through retail stores in the City of Los Angeles was in fibre.

Figures indicate that in the various California markets where paper containers are offered, 40 to 60% of the market milk distributed wholesale in one quart containers is packed in single service paper containers.

Following revision of the law early in 1939, four types of fibre containers were available for packaging milk on the Pacific Coast. These containers were the Sealright, the Excello Corporation's Pure-Pak, The American Can Company's Canco, and the Reed.

The first distributor in California to use the fibre milk container exclusively, according to Mr. Vehlow's paper, was the Lucerne Cream and Butter Company, a Safeway Stores' controlled subsidiary. This organization discontinued the use of the glass container in its San Francisco operation in the fall of 1938.

This change in distribution methods by this company resulted in the adoption of fibre by other distributors engaged in wholesale milk distribution.

At the present time the single-service paper container is being used in all of the major milk markets in California. What the ultimate percentage of milk packed in paper containers will be depends upon consumer demand for milk in fibre containers on retail routes.

The small remaining number of distributors who are packaging fluid milk exclusively in glass for distribution to retail stores can no longer ignore the grocer demand for milk in single service paper containers and must be prepared to meet the problems which arise in connection with the use of this type of package, is Mr. Vehlow's opinion.

States Mr. Vehlow: "For the purpose of this paper, the fibre container most extensively used on the Pacific Coast is identified as type C. Sales of fluid milk in this type of container represent approximately 80% of all milk sold in single service containers in California.

"Type D container, while approved by the State Department of Agriculture, is not being used by any California distributor at the present time.

"A number of small distributors are attempting to meet the competition of distributors engaged in fibre distribution by using a fibre container, which is designated as Type A, which does not require installation of additional equipment. Studies made by the Department of Agriculture indicate that the cost of this package, together with the plug cap, is in excess of the cost of any of the other types of fibre containers.

"Laboratory and operating tests which have been carried on show all of the containers to be reasonably satisfactory. Therefore when a distributor 'goes paper,' the factors to be considered in selecting a type of fibre container are the cost of the package, the available space for installation of filling equipment, the outlay for fillers, and consumer appeal for the various types of container.

"The Type B container, one which is formed in the plant where milk is processed, has some cost advantages over other containers, especially where the shipping charges upon the packages or package material become an important item of cost. Type B containers are shipped in the form of flat blanks and a considerable saving in freight takes place over the factory-formed container. This freight saving is reflected in package costs which are lower than those of containers fabricated in the factory."

"The Type C container also has certain desirable features, in that less space is required for the necessary filling equipment in the distributor's plant than is the case of the Type B filler. This becomes important especially in plants conducting a dual operation in fibre and glass. The flat rental charge for the Type C filler is an inducement compared to the royalty fee or capital outlay necessary for the Type B filler. Standby Type C fillers are available at a lower cost than is the case in the Type B operation. The number of men required in the filling and packaging operation of either the Type B or the Type C filler is approximately the same; however, the capacity varies between the two fillers. Efficient milk distributing plants using either type require one man to feed the machine, one man to operate the filler and case the product and one man for loading the packaged product.

"The Type D container requires more storage space than does either of the others with the exception of the Type A container. Reliable facts are not available to provide a comparison of costs of this container with those now being used."

Colton Tried to Join the Army

● E. L. Colton, son of Louis A. Colton, vice-president of the Zellerbach Paper Company, left his job with the Kansas City Division of the company to join the Army. When he got to the Coast the Army decided his eyesight was too faulty to don Uncle Sam's khaki, and so the young man is now connected with the San Francisco division of the company.

Hawley Men Emphasizing Safety Work

● The employees of the Hawley Pulp & Paper Company at Oregon City, Oregon, are out to improve the company's accident record by making 1941 a far safer year than 1940.

As part of the increased emphasis on safety, first aid classes have been resumed at the mill with A. D. "Jim" Hicks as instructor. The first class of the new standard course was held March 4th with around 60 employees attending. Both afternoon and evening classes are held to facilitate regular attendance of the men on all shifts. A large number of those taking the primary first aid course have indicated their intentions of continuing with the advanced course, according to Charles A. Fox, safety supervisor for the Hawley mill.

The objective of the first course is to provide training on "what to do and what not to do before the doctor arrives." The course of instruction is designed to teach practical first aid for use both on and off the job.

With the completion in April of the course started early in March, the enrollees will receive American Red Cross First Aid Certificates making them eligible for the advanced course which will be given immediately following the primary course.

In addition to the first aid classes several other methods are being employed to develop safety-consciousness among the Hawley men. A safety barometer at the time office indicates by green or red lights whether an accident has occurred during the day, the green light burns as long as no accident occurs. A concerted effort is being made to keep the record "in the green."

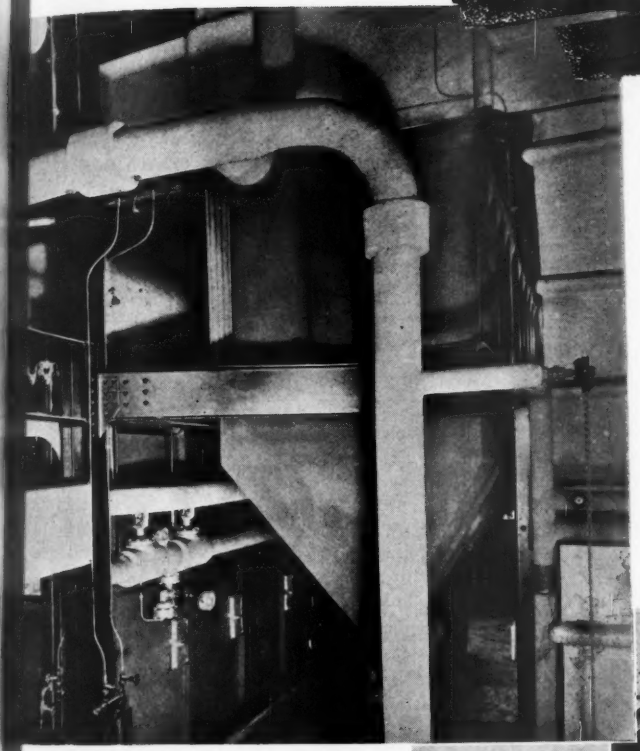
A large bulletin board on the company lawn lists, by departments, cumulative time lost by accidents during the current year. Adjacent to this bulletin board is a glass covered poster case displaying safety posters and placards of safety activities or, in some cases, illustrations of the risky, dangerous methods which should be avoided.

The Hawley Pulp & Paper Company employs a full-time safety millwright, Richard Smeder, working under the direction of the safety supervisor. Other mediums contributing to safety include a safety-suggestion box at the time office for the convenience of the employees. The idea here is that the men operating the machines should be in the best position to make safety suggestions pertaining to the particular machines they operate.

Safety meetings are held twice monthly on the 2nd and 4th Wednesdays. Any employee may attend. These meetings usually feature a speaker, safety pictures, or safety quizzes, followed by open discussions and, perhaps, black board talks.

According to the safety supervisor the majority of the employees and the management are tending toward bettering and improving safety conditions of the industry.

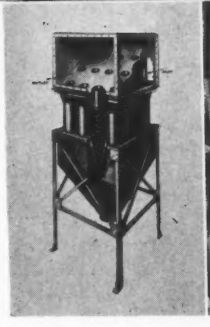
HOG FUEL FIRING WITHOUT FLY ASH NUISANCE - INSTALL MULTICLONES



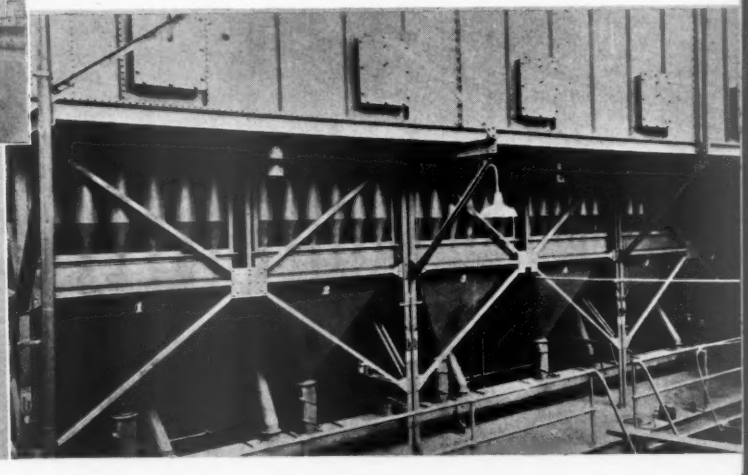
EVERY OPERATOR knows the economies to be effected with "hogged" fuel, but he also knows that the resultant fly ash constitutes a real problem. Multiclones meet this situation, collect the dust-dry and come in a range of sizes to give any desired efficiency. They avoid corrosion problems and eliminate wear on airheaters and induced draft fans.

Multiclones are compact and can often be installed in otherwise useless space. They are easy to erect, easy to inspect, and, because of their low draft loss, save power. Test units of various sizes are available for actual demonstration in your plant. Let us give you the story of what Multiclones will do for your fly ash collection problem.

Above is illustrated a Multiclone installation at the Soundview Pulp Company, Everett, Washington. Placed ahead of the airheater it protects both the airheater and the induced draft fan from fly ash erosion.



Above is illustrated a typical Multiclone tube assembly. Multiclones provide efficiency, compactness, accessibility, economy, low installation and maintenance cost and low power loss.



The 180-tube battery of Multiclones shown above is collecting fly ash. Capacity 72,500 c.f.m., pressure drop 2" w.g., temperature 260° F., at plant of the British Columbia Sugar Refiners, Ltd.

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Diatomaceous Silica— How It Serves Industry

by HOWARD W. HALL*

BEFORE endeavoring to study the industrial uses of Diatomaceous Silica, you may have a better understanding of the subject if we first explain the nature of the Diatom itself.

The Diatom is a single celled marine plant. Dr. Albert Mann explains that it is the most important food of aquatic animal life, and has named it GRASS OF THE SEA. There are about 10,000 different varieties of diatoms and of these, between two and three thousand have been observed on the North American continent. Some diatoms live in fresh water and some in salt water. Some varieties are heavy and lie at anchor, while other varieties are light and float freely. The latter are called Plankton diatoms. One noted locality for the study of the growth and characteristics of diatoms is the area along the beach at Copalis, Washington. Here in the early spring, just about this time of year, there can be found on the sand and even seen in the surf, a greenish brown mass. This mass is composed of organic compounds and silicious shells in which will be found a droplet of oil. On heating, the organic portion of the mass is burned away leaving only the skeleton of the diatom. This skeleton is the valuable industrial product.

These tiny skeletons or fossil diatoms, settling on the bottoms of the numerous lakes and inland seas which were formed during the Miocene period of Volcanism, accummulated to create the huge deposits of what is known today as diatomaceous silica. The deposits of diatomaceous silica are widely distributed over the surface of the earth, and each locality seems to have produced a diatom peculiar to that locality. The difference in the shape or design of each specie of diatom is truly individual, and from the shape can be determined the industrial value of the material.

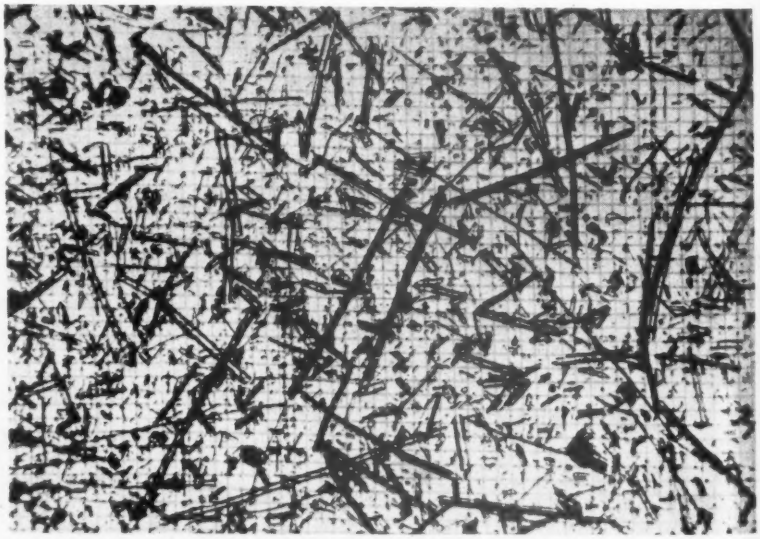
Before we go further in our discussion, let us distinguish diatomaceous silica from other materials under whose names it has been wrongly classified in many instances. Diatomaceous silica has been confused with infusorial earth. Infusoria are unicellular animals while diatoms are unicellular plants. In certain cases, diatomaceous silica has been called Fuller's Earth. These two materials differ in origin, composition, density, properties and uses. Fuller's earth is of mineral origin. In filtering processes, fuller's earth has sufficient adsorptive power to be useful as a decolorizing agent, whereas diatomaceous silica functions as a mechanical screen to remove insoluble suspended matter. Only by special treatment can diatomaceous silica be made to function as an adsorbent and decolorizer. In earlier days, diatomaceous earth was termed kieselguhr.

The structure of the fossil determines the commercial value of the diatomaceous silica because of its direct relation to the density of the material. To all fossil diatom powders, porosity is common, and its extent is calculable from the amount of liquid that can be absorbed or from the ratio of the true specific gravity of silica to the apparent gravimetric density of the diatomaceous silica. As is shown by microscopic analysis, large thin walled diatoms with relatively fine structure are preferable for all industrial uses. Such filmy fossils are more prevalent in the beds of Plankton Diatoms.

Dry diatomaceous silica of good quality will weigh approximately 22 lbs. per cubic foot block weight in the quarry. This same material in the form of a sifted powder will have a weight of 7 lbs. per cubic foot. Chemically it consists essentially of amorphous silica and is therefore inert to acids and solvents and only slightly affected by strong alkalis at room temperatures.

The other physical properties of high quality diatomaceous silica which make it so useful in modern industrial operations are:

1. Actual specific gravity of 2.05.
2. Apparent specific gravity of .112.
3. Particle size: ½-12 microns.
4. Refractive index of 1.48.
5. Porosity of voids of between 70% and 80%.
6. High surface area: 500 square feet per pound.
7. High whiteness or brightness: 89-91.
8. Water absorption: 200%.
9. Oil absorption: 190%.



This photomicrograph shows spicular or needle-like diatoms of diatomaceous silica, which have proved most efficient for industrial applications.

*Presented at the dinner meeting held by the Pacific Section of TAPPI at Port Angeles, Washington, April 8, 1941. Chemical Engineer, The Dicalite Company, Seattle, Wash.

The different degrees to which diatomaceous silica is refined will vary these figures and will be explained as the refinements are discussed.

Results of Refining

● One of the earliest evidences of man's application of this lightweight material was in 532 A. D. when architects of the church of St. Sophia in Constantinople found difficulty in supporting a dome 107 feet in diameter on four arches. At the direction of Emperor Justinian, they lightened the construction of the dome by resorting to the use of brick made from diatomaceous silica.

The pores that make this earth so light in density also causes the material to have a very low thermal conductivity. The thermal conductivity of diatomaceous silica insulating materials is approximately .30 BTU per hour, per square foot, per inch thickness, per degree Fahrenheit difference in temperature. In the insulation field generally, three different types of diatomaceous silica products are used:

● 1. A powder type of insulation is used to fill spaces of double walled structures, such as blast stoves, furnaces, flues and boiler settings. This material weighs between 16 and 18 lbs. per cubic foot when loosely filled, and when packed into place, will weigh about 20 lbs. per cubic foot.

● 2. A coares type of insulation with approximately the same properties as the fine powder will give an insulating value better than fine powder or brick at 1600 degrees F.

● 3. Calcined granules have been found very effective up to as high temperatures as 2100 degrees F. without shrinkage when packed dry, and 1800 degrees F. when mixed with Portland cement in the ratio of three parts of aggregate to one part of cement.

In the field of filtration, it must be kept in mind that no liquor passes through the diatoms. The liquor passes between the microscopic diatomaceous particles. For filtering purposes, the asicular or elongated diatom has proven the most efficient. This type of "needle-shape" diatom produces a "straw pile" effect when matting on a filter cloth or screen and thereby creates the maximum number of fine orifices per unit of area through which the liquor being filtered must pass. The surface condition of the diatoms also has direct bearing on the flow of the liquid through the filter cake. These conditions may be classified under three headings:

● 1. Processed Diatomaceous Silica Powders: Treated so as to be uniform in particle size, free from all foreign substances, and to produce maximum clarity in filtration.

● Calcined Powders: Those which have been subjected to high temperatures in a rotary kiln resulting in an increase of 200% in flow rate over processed earths and which will produce filtered liquids having brilliant clarity.

● 3. Processed Calcined Powders: Those which have been subjected to chemical treatment at high temperatures resulting in great improvements in flow rate and which produce filtered liquids having excellent clarity.

As we go up in a degree of refinement, the surface condition of the diatoms becomes progressively smoother.

As a Filter Aid

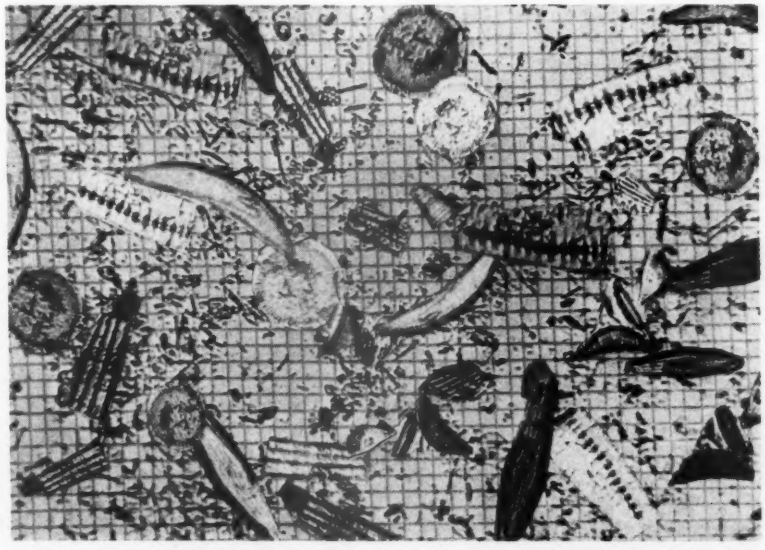
In the use of a filteraid, we must keep in mind that the filteraid must be used in a quantity slightly in excess of the percentage of suspended material which is to be removed. Maximum efficiency of filtering equipment is usually obtained when a pre-coat of diatomaceous silica filteraid is applied to the filter cloths or screens and then a quantity of filteraid is added to the liquor to be clarified. For general purposes, experiences show that a filteraid for a pre-coat should be figured on a basis of approximately 10 lbs. for every 100 square feet of filter area and, in addition, filteraid should be added to the main body of the liquor in a quantity approximately ½ of 1% of the weight of the liquor.

The pre-coat is best applied by mixing the filteraid in an amount of liquor equal to about 1½ times the volume of liquor held by the press and recirculating this liquor until the pre-coat has been applied. This period of recirculation will be between one and eight minutes from the start of flow.

A number of products filtered through diatomaceous silica are: acids, animal fats and oils, vegetable oils, solvents, glue, lacquers and varnishes, caseins, beer, whiskey, wine and honey. Typical solid foods that are filtered during their processing are: beet and cane sugar, gelatin, lard, and vegetable shortenings.

To show how this material enters into the life of the average man without his knowing it, the dry cleaning industry furnishes a good example. When he sends his suit to the dry cleaners, it is probable that in the washers the suit comes in intimate contact with a diatomaceous silica filteraid made especially for the clarification of cleaning solvents. The use of the filteraid in this industry makes possible the recirculation of clean solvent to the washers, materially increases the efficiency of the solvent, and insures better cleaning.

Industries and cities have been confronted with the problem of economically filtering tremendous vol-



Photomicrograph of elongated diatoms.

So, I'm "another eggspert," am I ? ! !

When I hear about their gold dredge shuttin' down all the time on account of bearings on the bucket line givin' out, I make a call . . . and ouch!

"We got no time for any more lubrication eggsperts," is the greetin' I get. So I *get*, too.

When I finally get my nerve back, I call again. "Confession is good for the soul," I begin. "I admit I'M no lubrication eggspert...but thanks to Shell's Safety Factors I *got* a grease that will *stay* in those bearings under water!"

Well, they're desperate by then; so they try it. And I get another new customer who is sold 100% on Shell's Safety Factors.

Your Shell Salesman

umes of water containing small amounts of suspended solids. For this operation, a pre-coat type Oliver filter is recommended, and a high flowing filteraid is demanded.

Support for Catalysts

● To make catalysts efficient, an inert carrying agent with extremely high surface area is required. Because of its high surface area, low density, insolubility and inertness under most conditions, diatomaceous silica makes an excellent supporting agent for catalysts. The catalysts may be incorporated with the powder in the dry form or it may be precipitated directly within the pores. Crosfield prepares an active catalyst for use in the hydrogenation of vegetable oils. He first impregnates the diatomaceous silica with a solution of nickel sulphate and then adds a solution of alkali to precipitate. After being washed, dried, and reduced, the product should contain approximately 30% metallic nickel. Processes similar to this are now used in the preparation of catalysts for large hydrogenation units. Diatomaceous silica is used as a filtering medium to remove the finely divided nickel catalyst from edible oils after they have been hydrogenated.

As a Filler

● Of the great number of filler uses for diatomaceous silica, time permits only discussion of the most important. One major use is in the production of various types of protective and decorative coatings. In this field, normally a white processed diatomaceous silica is found most desirable in the production of pigmented products such as flat paints, egg shell enamels, wall primers and sealers. Generally, the most satisfactory is a grade having a particle size allowing approximately —1% retained on a 325 mesh screen; oil absorption of approximately 120 on a Gardner-Coleman scale; a pound per solid gallon weight of 17.6, and with a refractive index of 1.47. Even with the refractive index of 1.47, the inclusion of diatomaceous silica in a decorative coating where high concentrations of oils and varnishes having a refractive index very close to 1.47 are used, the opacity of the film is increased due to the ability of the diatomaceous silica to disperse the opaque pigments customarily used in formulas for such products. Where diatomaceous silica has replaced clay or other inert extenders, the opacity of the films has been increased as much as 6% with no increase in the concentration of the opaque pigment. The difference in the bulking value of diatomaceous silica when compared to other pigments and fillers must be kept in mind. For example, when replacing certain forms of hydrated magnesium silicate fillers, only 60 lbs. of diamtomaceous silica should be used for every 100 lbs. of the other filler. This relationship holds true in oils and varnishes. However, in the production of surface coatings where water is the medium of application, a bulking figure more closely approximating the wet density of the materials must be used. In surface coatings where water is the principal portion of the vehicle, properly processed diatomaceous silica has a definite pigment value. This pigment value is based on its high whiteness, high bulk, and high surface area per unit of weight.

In making tests to evaluate the comparative covering power of diatomaceous silica, the following figures represent the number of grams of pigment necessary to completely obliterate one square foot of black and white cross section paper where a small quantity of water soluble organic adhesive is used as a binder:

Titanium Dioxide	8 grams
Titanium Calcium Pigment	12 grams
Titanium Barium Sulphate	14 grams
Diatomaceous Pigment	16 grams
Domestic Clay	23 grams
Chalk Whiting	23 grams
Hydrated Magnesium Silicate Inerts	24 grams

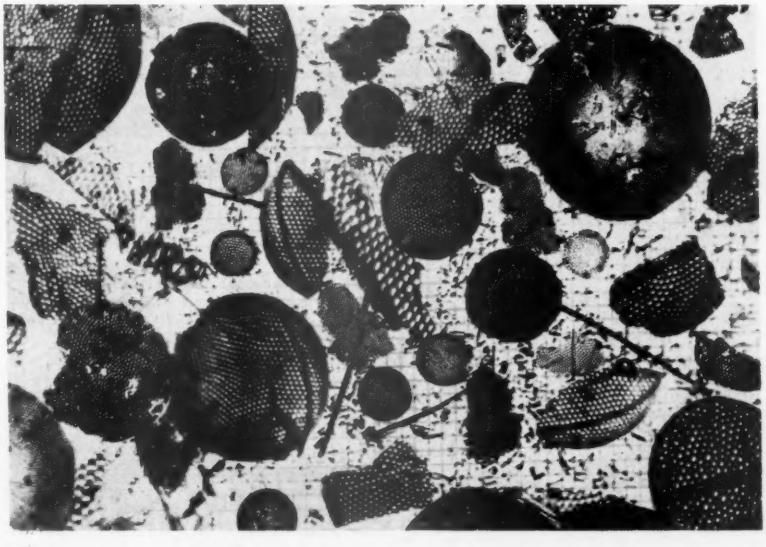
In Plastics

● Diatomaceous silica, again because of its high bulk, is used in the manufacture of various plastics, including the asphalt plastics, as well as the different types of synthetic plastics that are now on the market. For example, in the manufacture of battery boxes it was found that a reduction in weight of 25% could be effected by replacing clay with diatomaceous silica. This not only resulted in the production of a higher quality box but saved the manufacturer of the boxes a substantial sum of money in freight charges over the period of a year.

In Paper

● In the manufacture of paper, experimental work indicates that diatomaceous silica of the proper structure which has been refined to the degree demanded by the paper industry is proving of value to the paper manufacturer. The points that should be of interest to the paper manufacturer are the high brightness, the asicular structure, and the high bulk of the diatomaceous silica.

We confidently expect the application of diatomaceous silica for use in the paper industry will be extended by means of new ideas now being developed with the purpose of reducing operating costs and improving products. We express the hope also that these developments may be the subject of later papers which we look forward to presenting before interested organizations.



Photomicrograph of typical coscinodiscus diatoms.

Private Enterprise In National Defense

by ALBERT H. HOOKER, Jr.*

ALL Europe is again at war, and the American Legion is deeply concerned. Today the world is in frightful chaos. Never before has humanity known such disturbance, such fear, and such uncertainty. Since we laid down our arms, nearly a quarter of a century ago, those ideals for which we fought have been constantly attacked. In this changing world it is becoming more and more difficult to maintain those ideals.

Our Legion Americanism program contributes to the preservation of our American institutions, and to providing leadership among our young people. This is carried on through high school oratorical contests, Legion Awards for "Honor, Courage, Scholarship and Service," through 2900 Legion sponsored and maintained Boy Scout Troops, through over five million boys of 17 or under who have played Legion Junior Baseball, through Legion Summer Camps, and through Citizen Schools for the foreign born.

Legionnaires are good citizens, progressive and socially conscious, occupying responsible positions in community life and public office, in business and agriculture, in labor and industry, and in the professions. Through Legion leadership we can insure our freedom and preserve our liberties so that the world will again be a scene of peaceful labor and achievement and progress.

Through the American system of free enterprise we have achieved the highest standard of living the world has ever known, bringing to the average family, services, goods and luxuries that were unknown but a few years ago. It has improved our health and our education. Private enterprise, free from present handicaps, will bring us still more abundant life.

Because of the European War, the United States has undertaken a program of armaments adequate for our defense from any possible attack. This program is receiving the whole-hearted cooperation of American Industry, which has pledged its knowledge, its experience, and its productive ability to this tremendous task. The fact that Industry is ready to do its utmost for National Defense does not lessen Industry's hatred of war. It is absurd to believe that Industry encourages war for the sake of war profits. That wars breed only unemployment, depression and misery was demonstrated in the aftermath of the World War. In America, we have made our greatest economic and social progress in the pursuit of peace.

While desiring peace, we all realize that armaments must be produced in vast quantities. To do this successfully, we must clearly understand the practical problems involved.

Congress will define the area to be protected, our military experts will define the strategies—the man power, the land, sea and air bases needed, and the equipment required; and Industry must produce this equipment.

There has been no lack of heroism among the defenders of Europe's devastated democracies, but heroism alone cannot stop hordes of tanks and clouds of aeroplanes. The mechanized monsters abroad demonstrate that modern wars cannot be won without mass production. Mass production originated with American manufacturers. As we excelled the world in mass production for peace, so we can and will, surpass the world in its use for defense.

Production for defense does not depend solely on gigantic appropriations, essential though they be. You cannot "appropriate" a battleship, tank or aeroplane. You can only appropriate money to pay for them. It would be wonderful to press a button and see a huge bombing or combat plane roll off the assembly line, or see a great tank take instant form.

Production for defense calls for speed in formulating and standardizing specifications for equipment, the placing of orders, and the obtaining of needed raw material. Months are required on engineering. Drawings must be right, or precious time is lost. More months are required to produce the tools needed to transform blueprints into production and still more months, to do the actual manufacturing and assembling. Our military experts and experienced manufacturers agree that it will take from 18 to 24 months to produce the necessary National Defense Equipment.

The manufacture of armaments in such enormous quantities calls for the granting of full authority to practical and experienced men to handle the job promptly and effectively. This is being done.

The defense program likewise calls for prompt government action to encourage the flow of private capital into the industries, for the building of new plants, and the conversion of old plants to produce military equipment. Government rules and accounting regulations should permit the rapid wiping off of such investments before they become virtually valueless when the emergency is past. When so liquidated they will not drag down our national economy and lead to still another post-war depression. Private citizens will thus be encouraged to invest their savings and thereby reduce the burden on the taxpayer.

Our National Defense program calls for removal of such legislative and administrative restrictions as military and industrial experience have demonstrated to be barriers to maximum production. This does NOT involve the surrender of any sound social gains. Our National Defense program calls for the utmost cooperation between Government, Industry, Labor and the Public, in a united effort to protect our freedom.

Another enemy of our freedom is the unfair criticism of private enterprise, including resentments, doubts and fears, developed in recent years of depression and confusion. Some of this criticism has originated with persons ready to capitalize discontent to their own advantage, or promote some revolutionary cause. In this, there may be more honest misunderstanding than subversive intent. Some people have assumed that the exposure of an occasional abuse must indicate a general rottenness, or that some betrayal of a trust means universal untrustworthiness—forgetting that it is the uncommon which makes news.

The whole purpose of my plea is to urge your support of America's system of free, private enterprise. We must create an understanding of what this means in our American life, and how our other liberties are involved with it. We must direct Public Opinion against any undemocratic movement, so that we may come through the months of tension ahead, with our freedom intact.

We all believe in our American system of free enterprise. We know it has faults, but there is no system to substitute, with sound fundamentals. Industry itself is more aware of its shortcomings than the rest of the public, and its responsible leaders are earnestly engaged in correcting its faults, and adapting their policies and practices to the new social thinking of the last few years. Our industrial leaders are striving constantly for more efficient production and distribution of goods and services. The diverse abilities, energies and initiative of a free people, exploring new frontiers, pooling their means and efforts in voluntary association, make a dynamic force for achievement far beyond the reach of the enslaved or regimented society of any totalitarian state.

We don't ask for freedom of private enterprise without reasonable regulation by the government in the public interest. In free speech and free assembly we recognize the need of some limitations for the protection of individual rights and the public welfare. The same is true of free enterprise. But wise and reasonable regulation in the pulbic interest is vastly different from government CONTROL.

Here is a commonplace illustration of this difference—the automobile is an important factor in our individual and community lives. However, its use requires some public regulation to protect life, and expedite traffic, so that we can travel on foot or by car with maximum safety and minimum delay. We don't put stop-signs at hundred yard intervals on the highways, or place a policeman with his hand on every steering wheel, or require the filing of an itinerary at police headquarters every time a car is taken out of the garage. Neither do we station an officer with a megaphone at every corner to inform the public that owners and drivers are a bad lot. The automobile is substantially taxed, but we stop short of taxing it off the road. In theory at least the taxes are levied to promote, and not to retard its use.

Similarly, government regulation and taxation of business should aim to safeguard and encourage private enterprise, to insure conditions favorable to the exercise of all our inventive and organizing genius. We don't want to centralize con-

*Presented before the American Legion Post, Bellingham, Washington, January 13, 1941. Mr. Hooker, Western Sales Manager for the Hooker Electrochemical Company, Tacoma, Washington, is a major in the Chemical Warfare Service Reserve and Chairman of the Americanism Committee, Rhodes Post No. 2, American Legion, Tacoma.

trol and operation of our economic life in government bureaus, nor to encumber it with as many restrictions as imaginative legislators and administrators can devise, but rather to maintain a fair balance between individual freedom and public authority.

Modern history shows that tyranny, which forebodes the ends of human liberty, always begins during some period of great economic hardship. The totalitarian systems of Russia, Germany and Italy sprang from depressions. Under the guise of emergency the state intervened in the economic system. Before the people realized it, thy were regulatd, and regimented, and their initiative killed —and they have been sold down the river.

In contrast to the American system of free enterprise stands the "planned economy"—of the Dictators. Such "planned economy" requires controls which can be attained only by surrender of complete freedom, and the concentration of both the political and economic power in the hands of single individuals or political groups.

A glance at Europe should be enough to convince us that private enterprise, representative democracy and our civil and religious liberties are inseparable. The same concept underlies them all—the sacredness of the individual.

On that spiritual concept rests the free man's right to participate in government; in other words, representative democracy. On it rests man's right to be free to worship, to read, to think, write and speak as his conscience directs, and to enjoy other traditional liberties. On that concept also rests the right of man to use his individual initiative in private enterprise. The inherent God-given right of the individual are the foundations of our entire American system of government, economics, and civil and religious liberty.

When attacks are made on our private enterprise system, our individual freedom and our free institutions are directly involved. Should our private enterprise system collapse, the whole house of freedom comes down with it.

The seriousness of our foreign problems make it doubly important that we solve our domestic problems without further delay. To do that, we must first remove the misunderstanding and misconception concerning industry, and to show what it really is, and what it means to the well-being of every man, woman and child. Next, we must eliminate new economic philosophies and experiments and get back to straight thinking and straight doing, and clear up doubts, uncertainties, suspicions and misrepresentations.

Obviously, industry desires to provide more jobs, for increased employment means increased production, increased sales, increased profits. Existing legislation eliminates exhorbitant war profits. The barrier holding back recovery is the uncertainty that keeps the people from investing their savings, and that halts them from buying goods and services.

First and foremost, we must get men back to work. We must demand our requirements for skilled workers. Industry says the problem can be met by normal economic processes, unhampered by unreasonable artificial restraints, but Industry can't do the whole job alone. Less than 25 per cent of those gainfully employed in the nation are normally employed in manufacturing, but as industrial activity expands, so also does general employment and national prosperity is again "around the corner." After the emergency comes our great problem of Rehabilitation: finding places for Defense workers and our soldiers and sailors.

Many of these barriers holding back recovery and more jobs are national in origin, but they have an immediate and direct effect on our community. Here is what one average company, employing 150 men, means to its community. Its payroll becomes a part of the lifeblood of that city or town. It supports 33 retail stores with annual sales of $500,000. It supports a 22-room school with 18 tachers. The employees in the factory require the services of 24 professional men—doctors, lawyers, dentists and so forth. The turnover of that factory payroll means 320 automobiles in the town, with all the attendant garages and filling station services. This one single plant creates a market for the products of 6,600 acres of farm land and provides $53,000 annual revenue for the railroads. Driectly or indirectly, 1,650 people in that community depend upon that single factory, employing 150 men.

Our National Defense Program makes it imperative to end this economic depression and encourage Industry to go ahead.

Could there be greater service performed by Legionnaires than to defend private enterprise as vigorously as we defended our other liberties? It is a defense of home, of traditional democratic principals, of our community life and our family life.

When you hear detractors of American business make statements that you know are untrue, or hear persons laboring under obvious misapprehensions, take up the challenge in behalf of the American way of doing things.

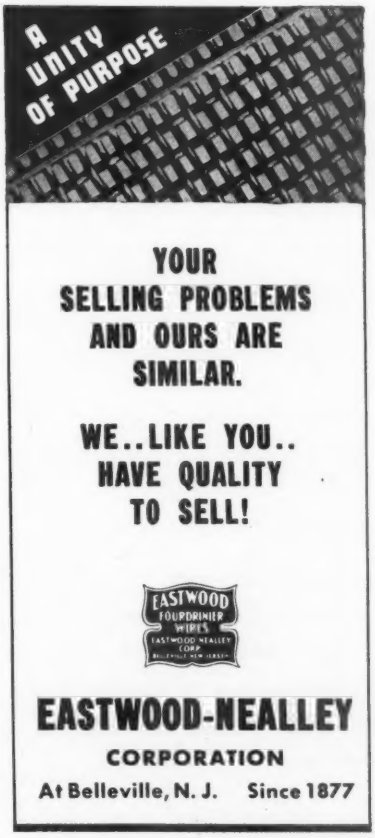
When people say "production for use, not for profit," ask if they would eliminate the desire of the individual to benefit by the efforts of his labor, for the profit motive is the source of all progress.

Ask those who suggest "planned economy" if they believe that a "government commission" could have "planned" the automobile, the aeroplane, or the radio? Point to Germany, Italy and Russia where "planned economy" has been put into effect. As a part of our day to day activities, let us promote an understanding of the American system of free private enterprise, which is the background and the backbone of our Country.

Our recent Legion National convention urged a rededication to our constitutional form of government, stating: "We all believe in change because we are a progressive people, but let the change be orderly, and let it follow the American way which holds that the will of the majority shall control, and the rights of the minority shall be preserved; that the government is the servant of the people and not its master; and that a government derives its just power from the consent of the governed."

Steve Chadwick, interpreting the objectives of the Legion, said: "We want to transmit to the next generation some appreciation of the liberties that they have, so that our children may say: 'They did serve us in peace, as they served us in war.'"

Fortified with faith and the will to substitute understanding for misconception, this nation can maintain the American ideal of individual freedom. We can show the rest of the world that our system of representative democracy, private enterprise and civil and religious liberty really work.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British Columbia Starts Tree Planting Program

● The British Columbia government's program for replanting of forests denuded by logging operations, fire and other causes was given considerable impetus this month by announcement that planting operations are now under way at five points on Vancouver Island and one on the mainland.

Over 1,250,000 trees are being planted at the Powell forest near Nanton Lake in the vicinity of Powell River Company's early operations.

Tree distributions have been elsewhere as follows: 700,000 trees at Elk Falls, Campbell River, scene of the big fire in 1938; 50,000 near Elk River Timber Company's operations; 1,250,000 trees on the former logging operation of Canadian Robert Dollar Company; 1,250,000 trees near Skutz Falls, Cowichan; 1,250,000 trees between Mesatchie Lake and Cowichan.

Initiated in 1927, steady progress has been made in artificial reforestation in British Columbia. From 1930 to 1938 a total of 909,063 trees were planted on 1194 acres; in 1939, a total of 1,014,560 trees were planted on 1118 acres; and last year 1,355,865 trees on 1497 acres.

This spring nearly 6,000,000 trees are available and next year about 10,000,000 trees will be ready for planting.

The young trees are reared from seedlings at government nurseries at Green Timbers, near New Westminster, and at Cowichan Lake.

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Triple-Clad Motors Offer Triple Protection

● As a result of a broad survey of the changing requirements of industrial users, an entire, completely new line of polyphase induction motors, in integral horsepower sizes, was developed by the General Electric Company in 1940 to conform with new industrial trends, processes, and practices. Known as the Tri-Clad motor and representing one of the most extensive product changes ever made in motors, it has called for many new methods in motor manufacturing.

In all its ratings, it features modern streamlined appearance; more complete protection—through the use of a cast iron frame and end shields—than heretofore available except in especially enclosed machines; major advances in the insulation through the use of Formex magnet wire; and improved bearing design and lubricating arrangements. At the same time, it incorporates the cast-aluminum rotor, pressure-relief system of greasing for ball-bearing motors, and other proven features. In addition it offers many new convenience features.

In recent years there has been an increasing and widespread demand for more protective features in open, general-purpose motors. Thus, despite its striking modern appearance, major industrial interest in the new motor will undoubtedly center around its outstanding mechanical and electrical protective features. In place of the conventional open frame, it makes use of a cast-iron frame of the box type. The end shields are designed to match the frame and are enclosed above the center line. This combination of frame and end shields minimizes contact of vital motor parts with foreign material such as lubricants, coolants, and other liquids, as well as chips, tacks, etc., while also protecting it against accidental blows in handling or similar rough usage. The new insulation, dust-tight bearing housings, and the use of Glyptal in the priming and finishing paints armor it against the attack of harmful agents.

Hooker Electrochemical Elects Officers

● The Hooker Electrochemical Company of Niagara Falls, N. Y., and Tacoma, Washington, announces the election of the following officers at the directors' meeting on January 20th.

H. M. Hooker, president; E. R. Bartlett, executive vice president; R. L. Murray, vice president in charge of development; R. W. Hooker, vice president and sales manager; L. A. Ward, secretary and assistant treasurer; J. F. Bartlett, treasurer and assistant secretary; W. A. Perrin, assistant treasurer; D. A. Riordan, assistant treasurer.

The company also announces the appointments of: B. Klaussen as works manager of the Niagara Falls plant; A. H. Hooker, Jr., as western sales manager, Tacoma plant; J. A. Flynn as works manager of the Tacoma plant; Dunbar Meek as purchasing agent; H. W. Hooker, Jr.; as assistant purchasing agent; G. F. Rugar in charge of sales promotion; T. L. B. Lyster continues as chief engineer.

Natwick Attends Industrial Conference

● A. G. Natwick, assistant resident manager, Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, Camas, Washington, left March 22 for the fourth annual Industrial Relations Conference of the Division of Industrial Relations held at Stanford University, Palo Alto, California. This conference is held under the auspices of the Graduate School of Business, Stanford University. While at the conference Natwick stayed on the university campus. He returned home March 30 by United Air Lines.

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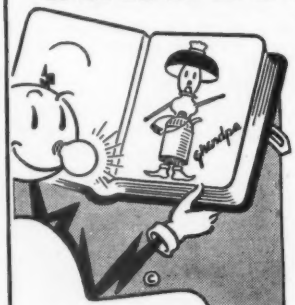

(From Reddy's Family Album)

Grandpa Sputter was a curious man;
His frame was built like a kerosene can.
A smoky lamp made his chest and head—
"He's a funny guy," the young folks said,
And Reddy, his grandson, shakes with guffaw
At the old "tin type" of his queer grandpa.

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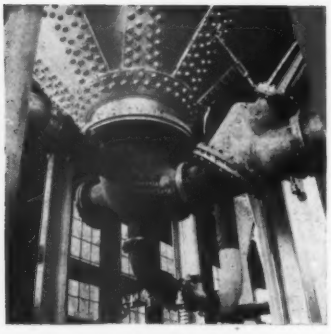

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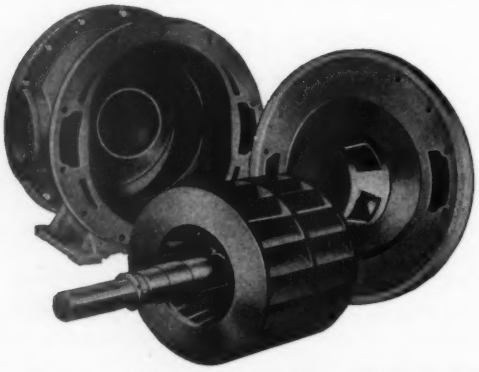

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